ENGINEERING NEWS-RECORD

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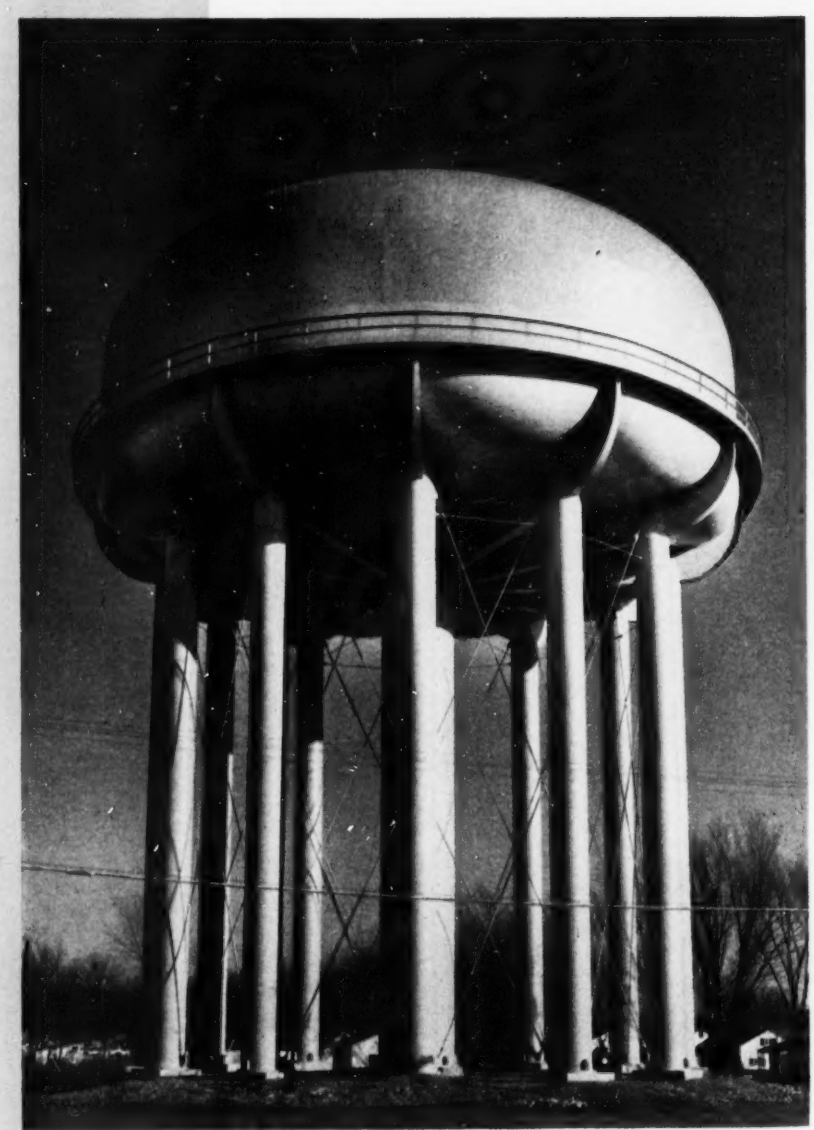
1,500,000-gallon HORTON Elevated Tank

Increases Distribution Pressures at Springfield, Mo.

The Springfield City Water Company recently installed a 1,500,000 gallon Horton radial-cone elevated tank in its water distribution system at Springfield, Mo. Results—increased minimum water pressures throughout the city and reduced peak pumping loads.

The story of Horton water tanks in Springfield is a familiar one. In 1907, a 750,000-gal. Horton standpipe was erected by the Springfield City Water Company to take care of the city's needs of that time. In 1927, a 750,000-gal. Horton elevated tank was installed to help keep abreast of the city's growing demands. These two Horton structures are still giving valuable service today.

Horton elevated tanks for private or municipal water systems are built with radial-cone bottoms in standard capacities from 500,000 to 3,000,000 gallons—with ellipsoidal bottoms from 15,000 to 500,000 gallons. For more information, please write our nearest office. State capacity desired, height to bottom and location. There is no obligation on your part.



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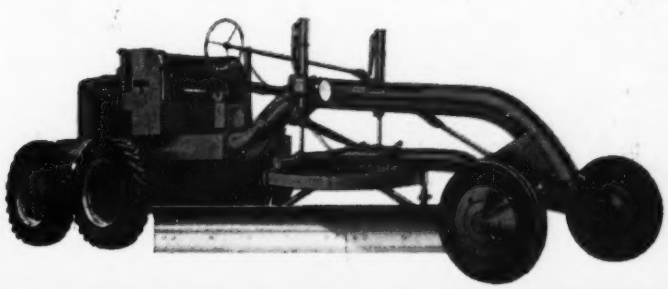

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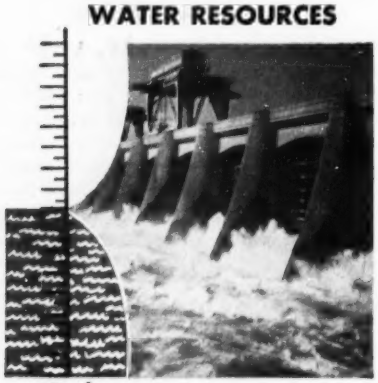

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Volume 150 — MARCH 5, 1953 — No. 10

WALDO G. BOWMAN
Editor

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Number of Copies of this issue printed, 57,130

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Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—Frankfort, London, Paris, Tokyo, Manila, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

March 5, 1953 — **ENGINEERING NEWS-RECORD** — Vol. 150—No. 10

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere countries, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under the Act of Mar. 3, 1879. Printed in U. S. A.

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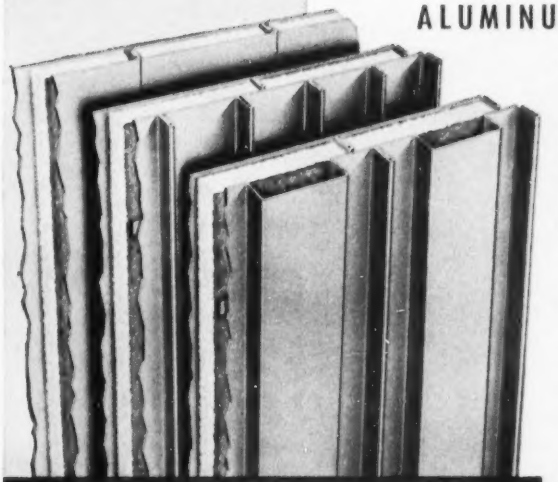

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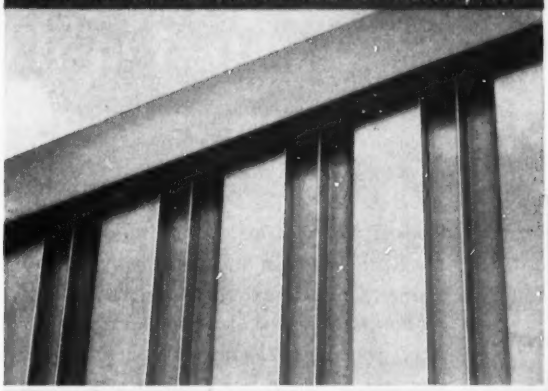

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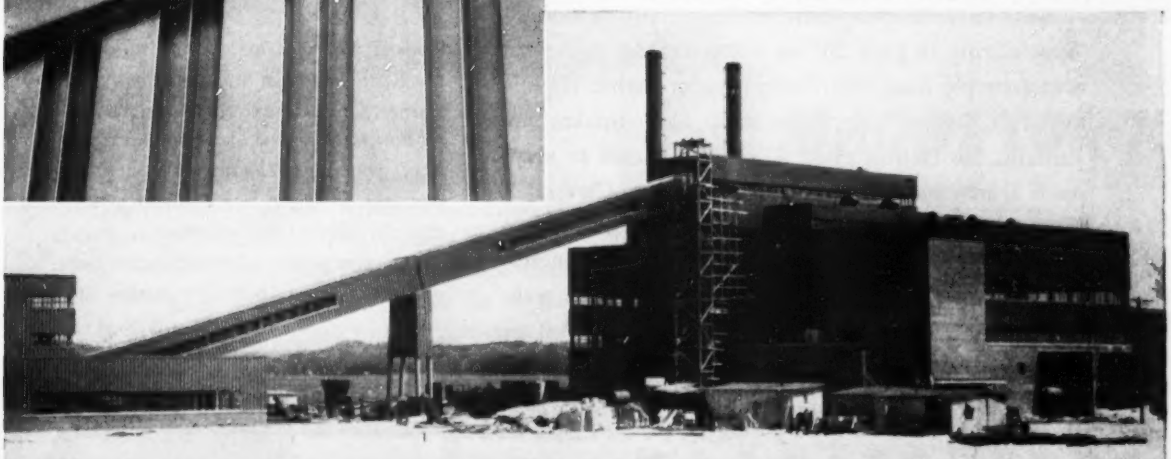

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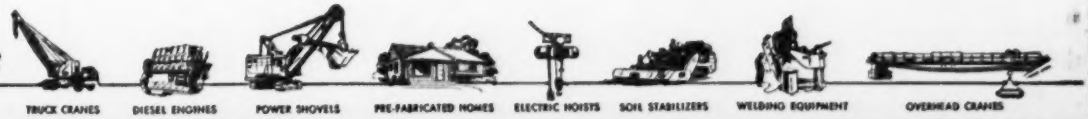

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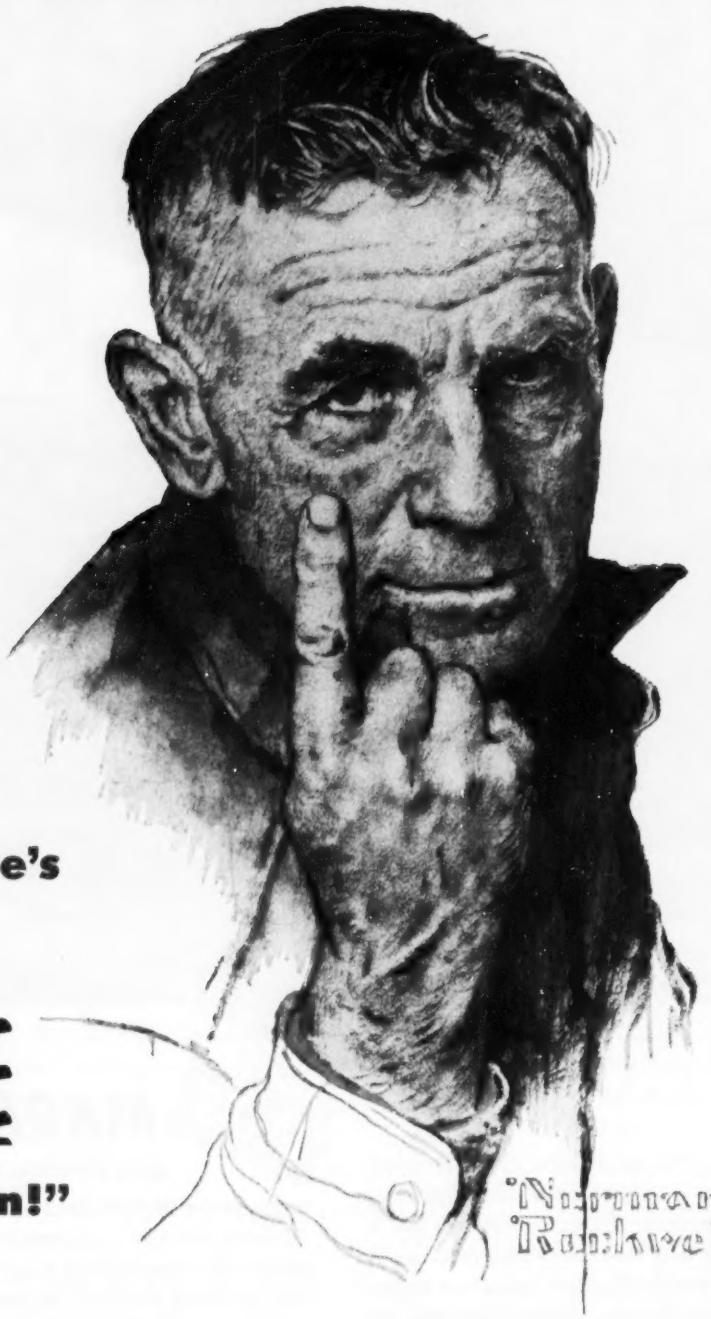

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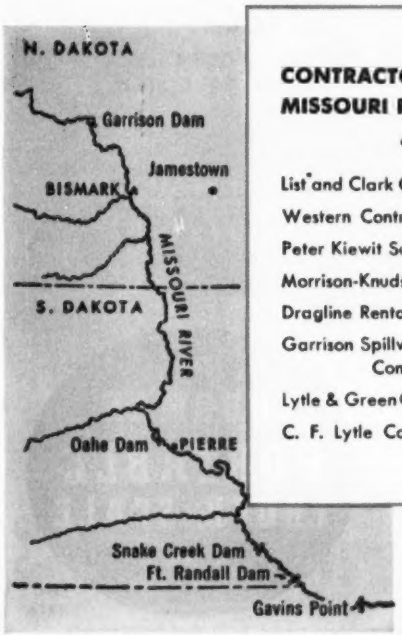

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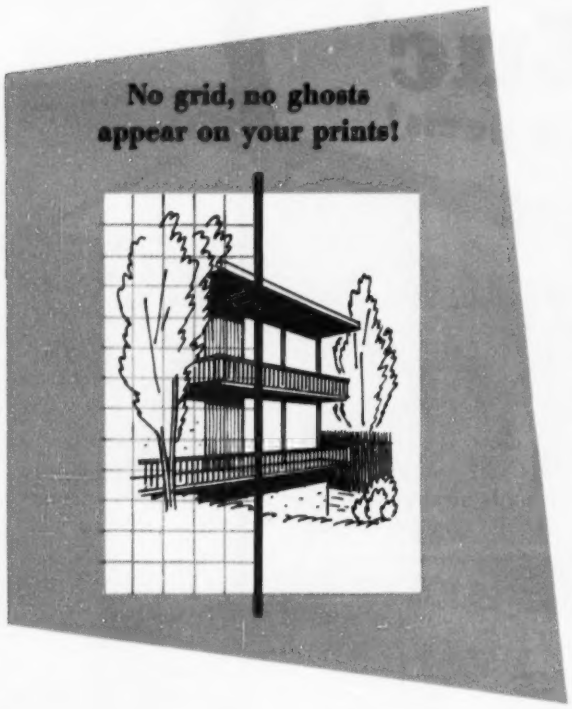

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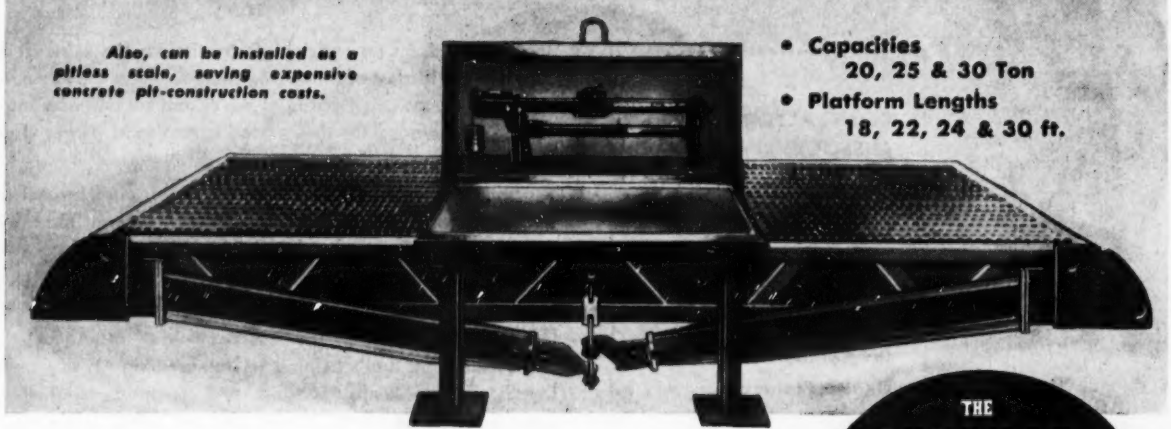

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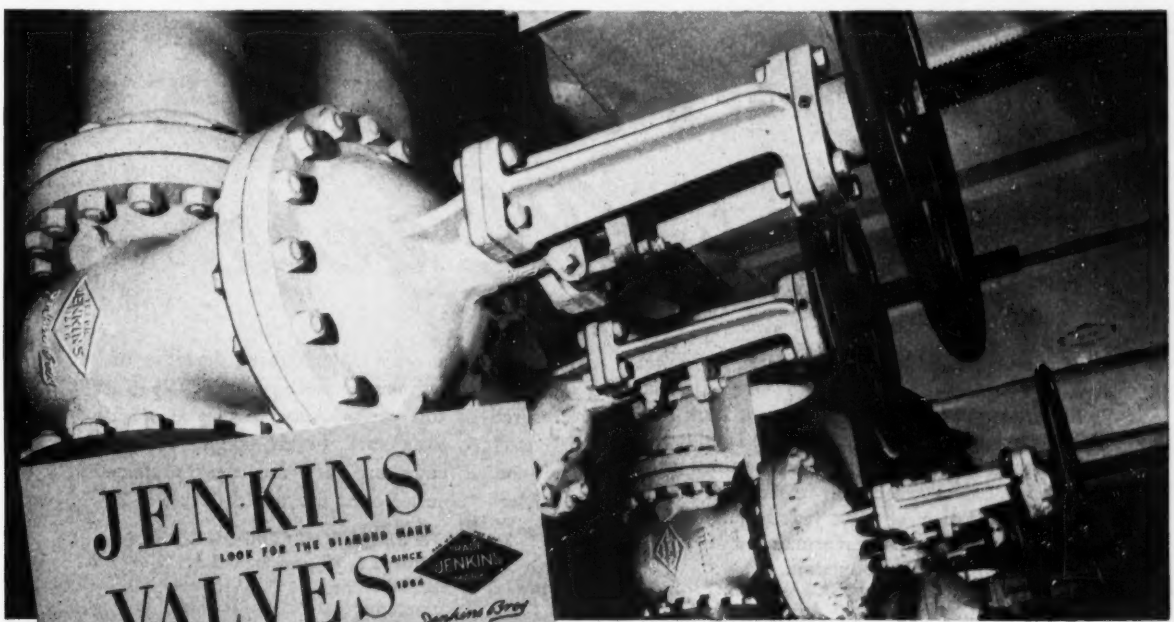

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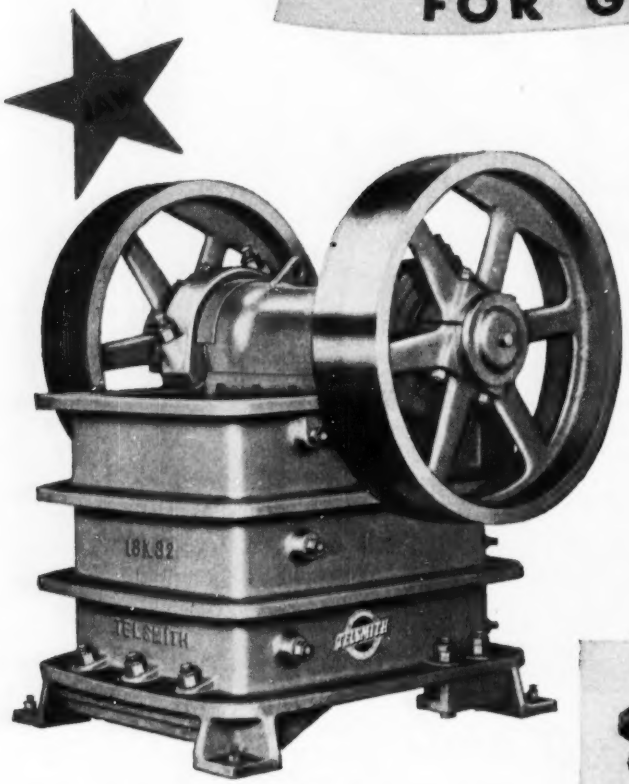
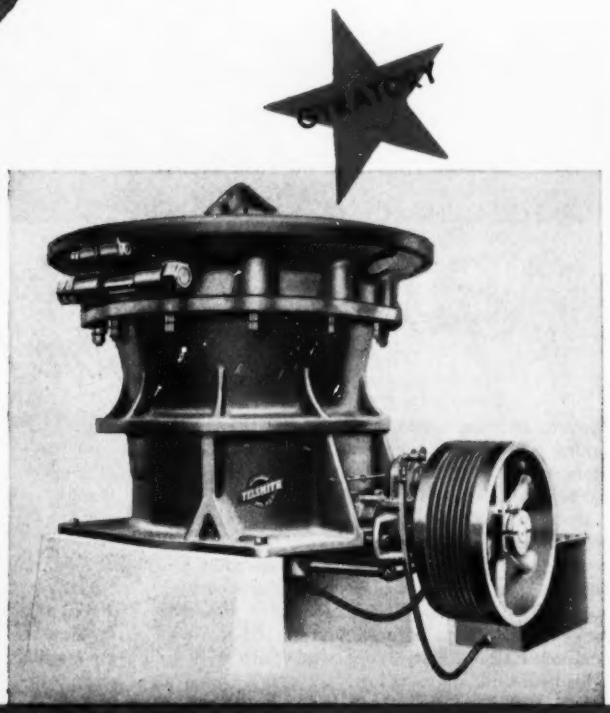


● **Telsmith Jaw Crusher** has a compact, massive cast steel frame and swinging jaw . . . with large cylindrical roller bearings throughout for higher speed, bigger capacity, and lower power requirements. With its vigorous, force feed, and remarkably effective crushing action, the Telsmith Jaw Crusher turns out a more uniform and cubical product, in larger capacities. Its easy, simple adjustment allows a wide product size range. Made in 9 sizes, from 10″ x 16″ to 30″ x 42″, 22 to 240 tons per hour. Send for Bulletin 280.



● **Telsmith Gyratory Breaker** is short and compact. Steel frame and crown, and rigid pillar shaft are all guaranteed against breakage. Largest feed and crushing areas of any gyratory breaker . . . the famous Telsmith parallel-pinch crushing stroke . . . cut steel drive gears, improved full, force-feed oiling and a roller bearing countershaft give not only faster crushing but crushing by impact, for a better cubical product. 7 sizes: 6B to 25B, 26 to 400 tons per hour. Get Bulletin 281.

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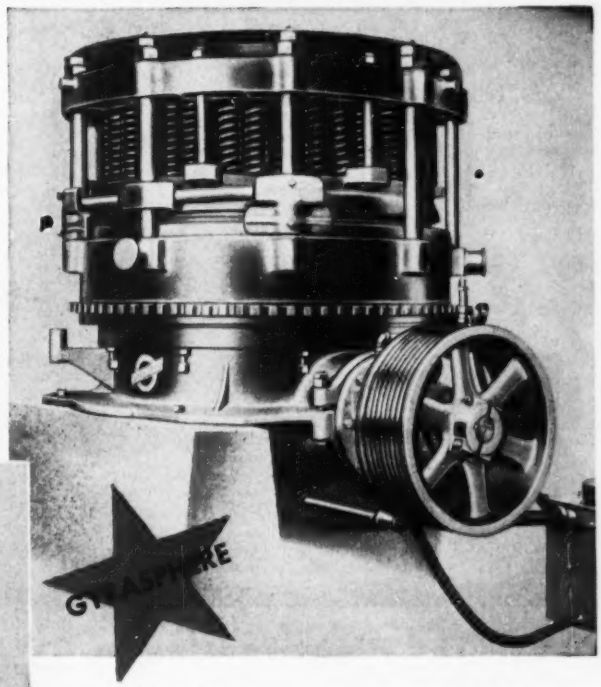

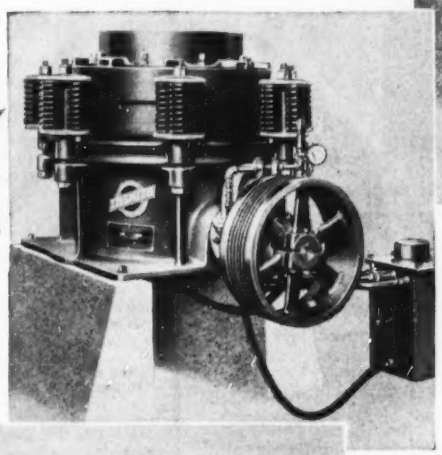

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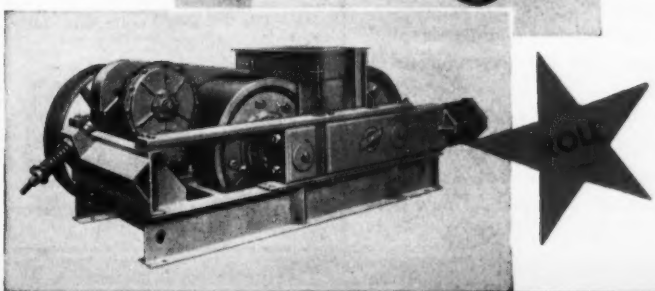

● **Telsmith Double Roll** for large capacities of intermediate or fine aggregate at low reduction ratios. Compact, light in weight, low in cost. Anti-friction bearings run in oil. 24″ x 16″ to 40″ x 22″ sizes. 75 to 132 tons. Get Bulletin 282.

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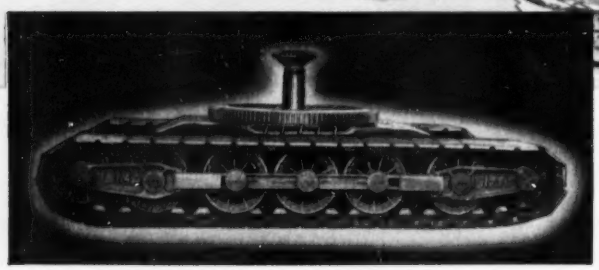


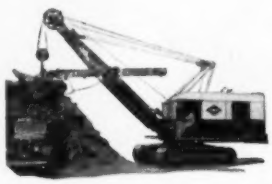
The Right Footing to Get There when the Going's Tough

When the snow is soft and deep, the smart sportsman doesn't bog down trying to buck it. He straps on his snow shoes—and the increased bearing area lets him go up and over the drifts.

It makes equally good sense to buy a shovel, crane or dragline that's built to ride over *not through* the soft spots—a LIMA, of course.

The crawlers on a LIMA are long and wide to give ample stability. Slightly elevated at the front to give a sled runner effect—self-cleaning—the LIMA crawler takes the tough spots right in stride.

So, when you're looking for equipment with greater working range—that will operate in the bad spots as well as the good ones—call your nearest LIMA Sales Office or Distributor. You'll find there are many other features—air actuated clutches, wide drums, anti-friction bearings throughout, etc.—that will help you set new performance records.



LIMA SHOVELS are available in capacities from ¾ to 6 yards.

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Wheel or truck mounting is available on machines of ¾ and 1½ yards capacity.

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Construction Equipment Division
LIMA, OHIO, U.S.A.

READER COMMENT

Pantograph not new

SIR: A tunnel cross-section recording instrument devised by Mr. Francis W. McGregor of Salt Lake City is described in ENR Nov. 27, 1952, p. 40. I congratulate Mr. McGregor on developing an ingenious device, but he is not the originator of the tunnel pantograph. That device is my invention, which I first made here in Portland in 1926. It is known as the "Proebstograph."

My device is described in an article, "Pantograph for Reproducing Tunnel Sections," (ENR April 14, 1927, p. 622.) I am sending you this information just in order to keep the record straight.

D. W. PROEBSTEL
Stevens and Thompson Engineers
Portland 4, Oregon

In a letter to ENGINEERING NEWS-RECORD, Mr. McGregor says, "I sincerely hope I can be excused for not knowing about this older instrument." We of the ENGINEERING NEWS-RECORD staff also beg pardon, for not checking our files.—Editors

In favor of competitive designs

Sir: The policy adopted by the Defense Department for the procurement of creative mental accomplishments (i.e., the services of consulting engineers and architects. Ed.) is unjust, and it is unsuited for the best utilization of available assets. The procedure (ENR Jan. 22, p. 21) is as follows:

1. It will be decreed who can solve a given design problem the best, the second best, etc., and a list will be made up containing these names in the sequence of their assumed ability. 2. The value of the accomplishment will be fixed in advance, and Nos. 1, 2 . . . , on this arbitrary list will be called in until the work is assigned for the contemplated fee.

Standard brand goods may be procured on a closed market in this manner, but not creative mental accomplishments, involving large public expenditures in a free competitive economy. Handing out design to an arbitrarily "lower rated" firm for the fee assumes that there is only one solution for the given problem, although an improper structure wastes more than any reasonable fee would add to the cost. Contrariwise, no magnitude of fee can assure that the best design will be obtained, because design involves an undefined mental performance.

This policy is not new. Its new appearance originates from the organized effort hindering the Defense Department in introducing proper, reasonable and efficient competition. A free competitive bid has to include outstanding merits of design and of construction in order to deserve and win a contract. If this is not the case, what might be termed a fixed brain contract results.

Reference to the professions of law and medicine in support of the proposed policy is not logical, because these professions are neither creative, nor competitive, but are purely private personal services. No such service is, however, the spending of vast public funds, materials and labor effort in an arbitrary manner, eliminating the necessity of the test of competitive accomplishment, hindering progress and the development of valuable men, and most effectively harming national strength.

LOUIS BALOG
CONSULTING ENGINEER
Binghamton, N. Y.

CALENDAR

Symposium on Air Pollution Control, Wagner College, Staten Island, N. Y. City, Mar. 7.

N. J. Sewage and Industrial Wastes Assn., Hotel Traymore, Atlantic City, N. J., Mar. 11-13.

N. Y. State Association of Highway Engineers, Hotel Statler, Buffalo, N. Y., Mar. 17-20.

American Railway Engineering Association, annual meeting, Palmer House, Chicago, Mar. 17-19.

Southern Municipal and Industrial Wastes Conference, Unviersity of North Carolina, Chapel Hill, Mar. 19-20.

Third Midwestern Conference on Fluid Mechanics, University of Minnesota, Minneapolis, Mar. 23-25.

American Congress, surveying and mapping, Shoreham Hotel, Washington, D. C., Mar. 23-25.

Conference on prestressed concrete, Newark College of Engineering, Newark, N. J.—Apr. 6-9-13-16-20-23-27 and 30—7:30 to 9:30 P. M.

Diamond Jubilee Convocation, Case Institute of Technology, Cleveland, Ohio, April 10-11. Topic "The Challenge of Free Men in the Atomic Age."

Concrete Reinforcing Steel Institute, annual meeting, the Carolina Hotel, Pinehurst, N. C., Apr. 27-May 2.

American Water Works Association, annual meeting, Municipal Auditorium, Grand Rapids, Mich., May 10-15.

Society for Experimental Stress Analysis, Hotel Schroeder, Milwaukee, Wis., May 20-22.

EXECUTIVE RATING?

Here's a short quiz for busy executives—and junior executives, too. You'll find it interesting and worthwhile.

- **are you making the progress you think you should?**
- **have you outgrown the need for further training—a refresher course, for example?**
- **are you up to date on every phase of your present position?**
- **can you say the same for the position just ahead of you?**
- **are you making use of your free time?**
- **has your salary gone up in the past six months?**
- **does your company have a perfect employee-training program?**

If your answer to five or more questions is "Yes," then there's no need to read on. You have arrived! But if you are still climbing, I.C.S. can help you.

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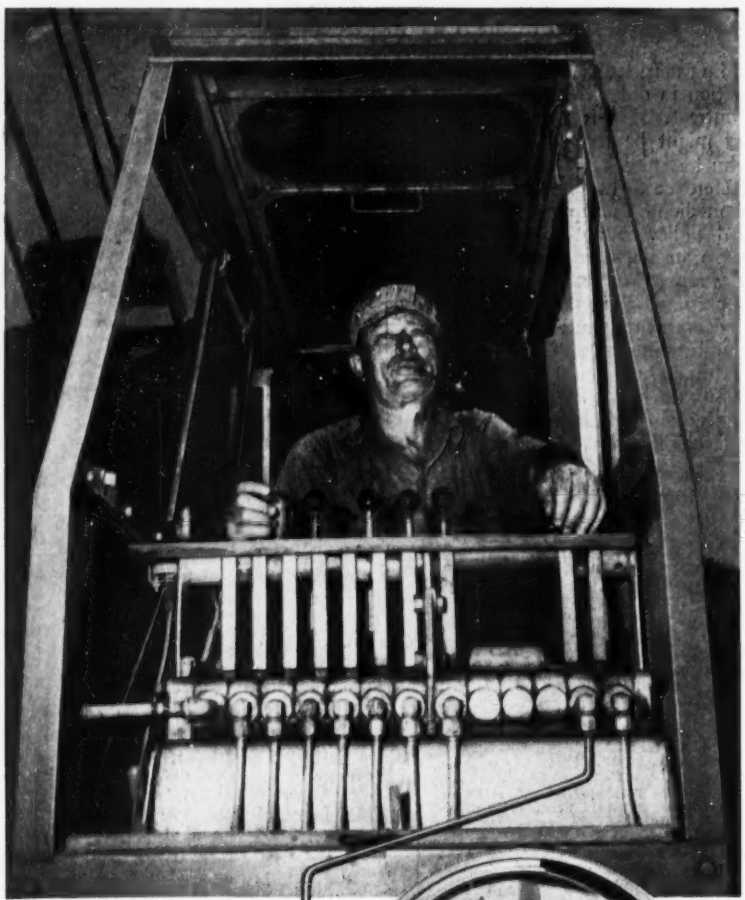

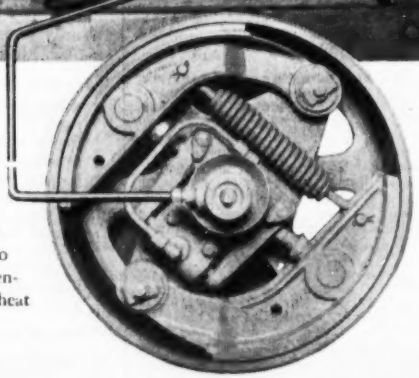

Speed-o-Matic Clutch shoes are actuated by perfectly controlled variable hydraulic pressure transmitted directly *into* the clutch. There are no mechanical linkages, no boosters. Clutch is self-compensating, automatically adjusts for heat and normal lining wear.

Link-Belt Speeder's hydraulic clutch needs fewer adjustments eliminates jerk, jump or lag

THE Speed-o-Matic power-driven hydraulic controls and clutch eliminate mechanical clutch linkage. This results in unequalled ease and speed of operation . . . smooth, instantly responsive action. You get longer lining life, freedom from frequent attention and far less chance for clutch failure.

For details on the Speed-o-Matic clutch . . . information on the Link-Belt Speeder line of crawler, wheel or truck mounted shovel-cranes, write:

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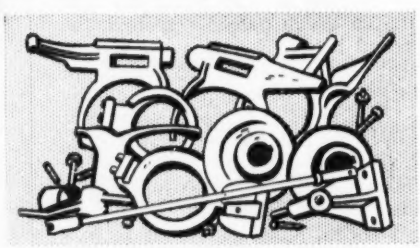

Eliminates up to 150 parts — there are no worn bushings, pins, links or clutch toggles to put you "down."

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WASHINGTON OBSERVER

The merger of Reclamation and Army Engineers is proposed in a plan now on Eisenhower's desk. It is recommended by his reorganization team headed by Nelson Rockefeller.

The plan would create a new Department of Natural Resources combining Army civil works, Reclamation, Forest Service, Soil Conservation, and other agencies handling water, power and land use. The plan follows closely the Hoover Commission recommendations of 1949.

•

Army Engineers are girding to fight the plan. They have strong support in Congress—or have had in times past. So unless the President wants to make a fight of it, he may decide to put it over piecemeal during a period of time.

Eisenhower's spokesman will be ex-Gov. Miller of Wyoming. He was in charge of the Hoover task force recommendations.

Interior Secretary McKay believes that maintaining both Reclamation and the Corps is wasteful, but he also has worries about the "colossal" bureaucracy a consolidation would create. He will abide by Eisenhower's final decision.

•

McKay is developing as an adroit performer in Washington. Here are some of the significant questions he fielded at his National Press Club luncheon debut:

Federal construction of multi-purpose dams—should be built only on the basis of economic feasibility, no "pork barrel politics";

Public power—"There are no private utilities. They are privately owned public utilities." Private industry has "done a terrific job" on Columbia tributaries, for instance—but it never could handle such jobs as Bonneville, Grand Coulee, and Hungry Horse.

Budget—Truman's budget for Interior can be cut.

St. Lawrence Seaway—"If New York wants to go ahead with its part of the power project, I say let it go to it." (Incidentally, it seemed certain this week that the state would get FPC's OK, after windup of hearings Feb. 27. Decision is due in a month or so.)

•

Balanced budget for 1954 means cuts in military construction. Defense Chief Wilson and Republicans in Congress are facing these hard facts: To reduce government spending enough means hard cuts in defense spending; cuts in defense outlays mean cutbacks in aircraft procurement; Air Force cuts would be shifted as much as possible to other-than-aircraft items; that means construction would be hit hard.

The figure now heard is $300-million reduction for all military construction. That's across the board—barracks, hangars, runways, and elimination or postponement of new bases. $300 million saved would be about 10% of the $2.7 billion called for in Truman's budget.

•

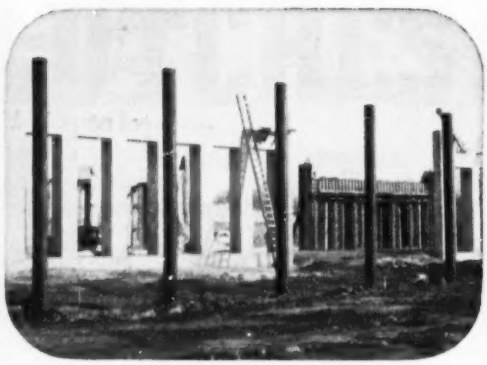
Government non-military construction less than 20% complete is being examined closely by agency heads and the Budget Bureau. It's the same as the "close look" being taken on military construction.

Congress already is finding economy tough going. The Appropriations Committee will be getting Budget Director Dodge's revised figures within the next few weeks, but lobbying already is beginning to protect "sacred cows." Example: While the House cut access roads money by $15 million on approval of the Administration, the Senate restored $10 million of the cut; too many home states were heard from.

•

Okay of 35,000 public housing units in fiscal '54 is likely. That's the same number Congress authorized for this year. The figure makes political sense. Democrats, who generally favor the 85,000 a year the original act prescribes, have the strength to prevent a cutback to, say, the 5,000 the House has tried to force the last two years. And though he has an anti-public housing record, new Housing chief Albert Cole says he won't battle against the program.

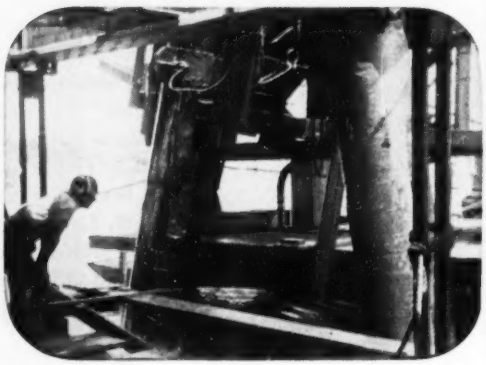
Piles for railway underpass.



Piles for super-highway bridge.

Piles for sewerage treatment plant.

Piles for railway bridge.



Here's the "straight story" on pipe piles

Straight foundation pipe makes for successful driving. This is why so many contractors like Armco Spiral Welded Pipe Piles—they have exceptional straightness and roundness. Driving is easier, faster.

Strength is also an important advantage of Armco Pipe Piles. The tough spiral weld offers high collapse resistance and extra lateral stiffness even in the longest lengths. And because Armco Piles drive straight, the energy of the driving blow reaches the point with minimum loss. Driving time is saved; construction costs are cut.

Although amply strong, Armco Pipe Piles are light in weight for easy handling and hauling. Diameters range from 6 to 36 inches with a wide selection of wall thicknesses. And with these uniform diameters you can economically salvage cut-off lengths.

To make that next foundation job a real money-maker, specify Armco Pipe Piles. For more data, write to Armco Drainage & Metal Products, Inc., 4342 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. Export: The Armco International Corporation.

ARMCO

PIPE PILES

ARMCO

THE CONSTRUCTION WEEK

• **Wage pattern**—One thing is emerging out of the scattering reports of new wage demands, now that wage controls are gone: Average construction-labor demand is going to center at about a 25-cent-an-hour raise. What labor will accept over the bargaining table is another matter—the betting now is that it will be about 10 cents.

• **Is it either or both?**—Construction men can spend some profitable time watching the progress of a fight, over licensing mobile cranes, that's being carried on in Illinois.

Focus of the battle is a 1951 vehicle licensing law which would slap a license fee of about $900 on the cranes. Previously, crane owners paid on a highway mileage basis. Organized as the Mobile Crane Owners Assn. of Illinois, crane owners contend that since off-the-road equipment like well-drilling rigs, combines, tractors and farm equipment are exempt from the 1951 act, inclusion of cranes (which they estimate average 500 mi a year on the roads) is unfair.

• **No steel worries**—In case anyone is still worried about steel supplies, a spokesman for Inland Steel Co. has comforting words.

Said Joseph L. Block, Inland vice-president: Military steel needs could rise two or three million tons this year, and still leave more of the metal for civilian uses than was available ever before.

• **Road fund protection**—It was a good week for the movement to keep highway revenues for highway uses. For example:

Wyoming's legislature adopted a joint resolution against diversion of road funds, for approval by voters; a bill in Rhode Island would earmark highway funds; New Mexico's legislators had a measure for consideration that would prevent diversion.

• **Bridge bonds safe**—By acting just two days before the financial deadline to OK financing of the new structure planned to bridge the northern arm of San Francisco Bay (ENR Jan. 1, p. 22), California's Supreme Court saved the state a lot of trouble and a lot of money.

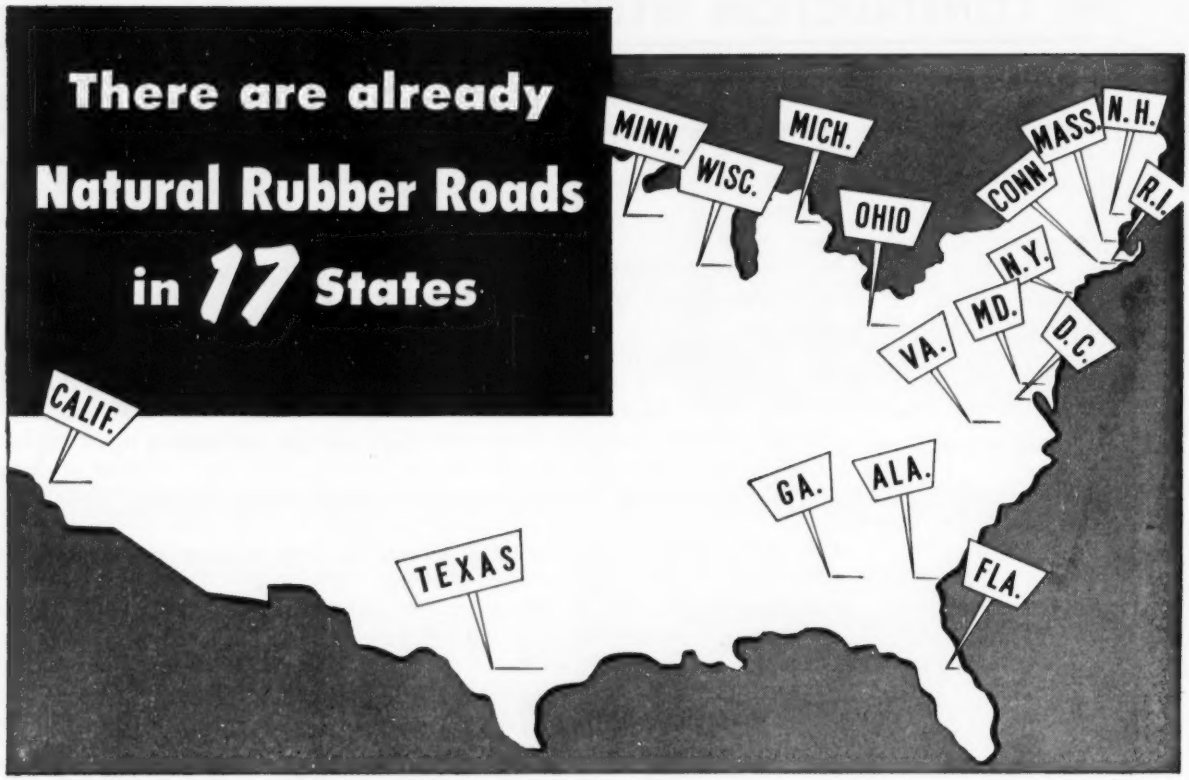
Had the court's action come after Feb. 27, financial firms that held options to buy the California Toll Bridge Authority's $62-million bond issue could have canceled their commitments. Construction bids also would have expired.

The state high court turned down a contention that the toll bridge authority had usurped legislative powers in issuing the bonds; and denied the validity of an argument that the projected bridge would preclude construction of an earthfill crossing at some future time.

• **Contractors pay engineers?**—The North Carolina legislature had before it an unusual bill—it would double the license fees for general contractors, and turn the additional revenue over to the North Carolina Engineering Foundation. The bill, said lawmakers, is the result of an offer of support for the foundation from the general contractors. (The foundation supplements the state salary scale to attract and retain top men for engineering instruction and research at North Carolina State College.)

• **Labor note**—One section of the U.S. government is getting efficient, anyway, Paul M. Herzog, NLRB chairman said to a Congressional Committee: For the first time in NLRB's 18 years, it is able to provide speedy service—rate of case handling is now 2,650 a year, compared with 2,000 a year for the last two years.

Added General Counsel George Bott: Production performance is improving every year. In representation cases, delay is no longer a real problem; settlement of unfair labor practice cases now averages 73 days after filing.



Many More Rubber Roads Planned for 1953

WRITE FOR FREE BOOKLET

Illustrated 36-page booklet, "STRETCHING HIGHWAY DOLLARS WITH RUBBER ROADS," tells the story of test natural rubber roads laid since 1949 in the U. S. and Canada. You may have a free copy by writing to the Natural Rubber Bureau.

☆ ☆ ☆

SEE NEW FILM—A new 30-minute motion picture on rubber roads, describing the work of the Natural Rubber Bureau Research Laboratory and showing rubber road installations in the U. S. Arrangements to obtain the film for a free showing may be made with the Natural Rubber Bureau.

Natural rubber powder, when mixed with asphalt for highway paving, gives promise of providing roads that last longer, require less repair, and help stretch highway dollars.

Highway engineers are enthusiastic over results to date in test roads of natural rubber-asphalt paving. So far, stretches have been laid in 17 states in all sections of the country.

Now is the time for you to plan a road using natural rubber. Suppliers report there will be plenty of natural rubber powder available for road construction in the U. S. this year and orders for any quantity can be filled promptly.

Technical data on laying natural rubber-asphalt paving is offered, without cost or obligation, by the Natural Rubber Bureau. If you are interested in laying a test road with natural rubber, simply write to the Bureau, giving us an idea of the size of the installation and your paving specifications. Our highway engineers will send you the necessary information and answer any questions you may have.

Natural Rubber Bureau

1631 K STREET, N. W., WASHINGTON 6, D. C.

Natural Rubber Bureau Research Laboratory, Rosslyn, Virginia

MARCH 5, 1953

VOL. 150, NO. 10

ENGINEERING NEWS-RECORD

Policy fight brewing over Kansas Basin survey report

Proposals made to state legislature call for halting construction on three large federal dam projects

Flood control in the Kansas River Basin can be achieved without large federal dam projects and at about one-fifth the cost of the proposed federal program already under way.

This finding plus an entirely new approach to Kansas River flood control is contained in an engineering study before the Kansas legislature.

Immediate halt of construction on three big federal dams—Tuttle Creek, Kirwin and Webster—is recommended in the report prepared by three consulting engineers engaged by the state government.

The engineering soundness of the report was immediately challenged by Col. L. J. Lincoln, Kansas City District Army Engineer, before a joint Kansas legislative committee hearing, which was on a resolution introduced in both chambers of the legislature, calling upon Congress to halt construction of Tuttle Creek Dam and to withhold funds for the Toronto Dam on the Verdigris River.

• **Three-point program**—Instead of further dam construction the survey group urges that attention be focused on "flow-way" improvement (an increase in channel capacity) along the Kansas River. It recommends a three-point program:

• Protection of urban areas by deepening and widening channels and by construction of higher, set-back levees.
• Control of flood-plain occupancy through flood-plain zoning.
• Better flood forecasting.

It is estimated this program would cost about $200 million compared with an outlay of more than $1 billion for the proposed federal program.

• **Board named by governor**—This is one of the rare instances of a state hiring its own experts to evaluate programs of federal agencies—the Army Engineers, Bureau of Reclamation and Department of Agriculture. The three-member group was named last summer by Gov. Edward F. Arn at the height of the state's dispute over big vs. little dams for the control of floods in the Kansas River Basin.

Members of the survey board were Abel Wolman of Johns Hopkins University, Baltimore, Md.; Louis Howson of Alvord, Burdick and Howson, and N. T. Veatch of Black & Veatch, Kansas City. Their recommendations were given to the state legislature in the form of a preliminary report. Final report is due May 1.

In support of the "flow-way" recommendation, crux of the board's proposed program, the report stated: "The situation is different in Kansas than in Ohio where dams in the Miami Conservancy District are close to the cities protected. Here, flood-producing rains fall downstream near the cities where the dam sites are not available."

• **Minimum land confiscation**—It notes that Kirwin and Webster Dams, now under construction on the Solomon River, are more than 400 river miles and 82 river hours from Topeka. Combined they would have cut only 800 cfs from the peak Topeka discharge of 469,000 cfs July 13, 1931.

"Flow-ways," the committee report said, "would provide for minimum confiscation of land and preferably only that land which is in the area to be protected. . . . For urban areas they are the only works which can guarantee a safe handling of large volumes of water through such areas."

• **Cost figures disputed**—Colonel Lincoln, in his testimony before the joint committee of the Kansas legislature, contended that dispensing with big dams and widening the channel would create such water velocities in flood periods as to erode the earthen levees. He admitted that "on paper the larger channel would contain the flood, but, he doubted that such torrents as the 1951 flood peak could be routed around the sharp curves at the Kaw mouth in the Kansas City, Kan., bottoms, where the stream joins the Missouri River.

The colonel assailed the survey board's use of the $1-billion figure as representing the cost of the dam and reservoir program backed by the Army Engineers. He said the cost would be nearer $700 million, based on 34 dam and 21 levee projects. Lincoln also doubted that $200 million would be enough for the projects outlined.

• **Says rural areas exposed**—The local share of the $200-million estimated cost, furthermore, would be prohibitive under present federal statutes, Lincoln told the legislators. "This proposal would give no protection to rural areas, leaving one and a half million acres in Kansas and Missouri exposed to every flood that comes along," he added.

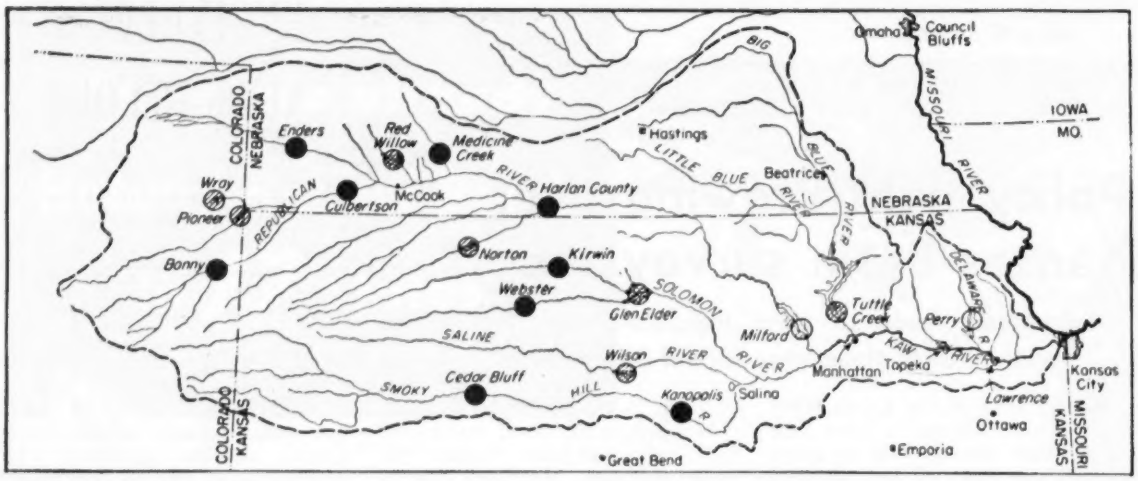
Criticism of the report came from the flood protection planning committee of Greater Kansas City, "A review of the preliminary report discloses that it completely abandons all further attempts to provide flood protection to the farms located in the valleys of the Kansas and Missouri Rivers from Salina to the mouth of the Missouri at St. Louis," declared a spokesman for the committee.

• **Claim it's an old story**—Washington officials, both Interior and Army Engineer, were reluctant last week to put their views on record, pleading that the full report is not yet available, but, in Army Engineer circles, there was plenty of unofficial comment.

Studies and surveys during a quarter century have made the Engineers fully conscious of the fact that there are two sides to the problem of flood control in the Kansas River. And they think the preliminary report of the three consultants to the Kansas legislature is a little one-sided.

Flow-way vs. flood storage in the basin has been exhaustively argued over many years, the Army Engineers point out. They recall that the controversy was covered thoroughly in 1937-38 during hearings in Washington and Kansas before Tuttle Creek Dam was authorized. Again last year, before Congress voted money to start the big reservoir project, proponents and opponents brought out every argument bearing on the conflict at public hearings in the nation's capital and in the basin.

• **What about local interest?**—Some Army Engineers see in the consultants' proposals a resemblance to the Fowler report to the two Kansas City, Mo., and Kan., in 1937-38. They also



CONSULTANTS' REPORT to Kansas legislature recommends halting construction on three big federal dams—Tuttle Creek, Kirwin and Webster. (Black dots indicate Kaw Basin dam and reservoir projects completed or under construction. Cross-thatched circles denote authorized and blank circles recommended work. Proposed "flow-way" program includes these projects:

• **Salina**—A cutoff channel for Smoky Hill River along the easterly side of the city. Construction of a levee along the east bank of Dry Creek north of Union Pacific Railroad tracks and along the north, east and south sides of the city.

• **Manhattan**—Enlargement of channel and reconstruction of Rock Island Railroad bridge to remove this obstruction to high flows. Construction of a new levee south and east of town.

• **Topeka**—Widening of river channel to 1,400 ft. Construction of higher, set-back levees and flood walls along the south bank plus enclosure of all north Topeka. Removal of two low-hanging bridge obstructions.

• **Lawrence**—Levees and flood walls along south bank of river and a levee enclosing north Lawrence.

• **Kansas City, Mo. and Kan.**—Widening flow-ways to provide carrying capacity for the 1951 flood flow without materially increasing the heights of levees and flood walls.

think it sounds something like a recent report by Black & Veatch to the Santa Fe Railroad on the same problem as it affects railroad property.

According to the report, the consultants told the legislature that on the average a flood as great as that of 1951 could be expected to occur only once in a thousand years. The Army Engineers, however, emphasize that the 1844 flood was worse than that of 1951 in some parts of the Kansas River.

• **Flood studies cited**—Since 1951, the Army Engineers have restudied the possibilities for the worst potential flood in the basin. By transposing the center of the actual 1951 storm to produce the worst possible condition, they have come up with the possibility of a flood that would considerably exceed that of 1951. Revision of the flood control plan to take care of this worst possible combination of conditions now shows a need for 22 small Army Engineer reservoirs, the Corps has told Congress, in addition to the three big ones already authorized—Tuttle Creek, Perry and Milford.

• **Dam construction under way**—Construction on the $80-million Tuttle Creek Dam, central project in the Army Engineer's Kansas River Valley flood-control program, began last October. (ENR Oct. 16, p 25). The George Bennett Construction Co. of Kansas City holds the contract for the $2.2-million first phase of the project, which is located on the Blue River, six miles north of Manhattan, Kan.

Kirwin Dam, a $17.8-million project on the north fork of the Solomon River, a tributary of the Kansas, is 10% finished. A $7-million contract for further work was awarded in January to Texas Construction Co. of Dallas, and the contractor received notice to proceed on Feb. 5 from Bureau of Reclamation construction engineer William J. Quinn.

Missouri Basin in states' rights furor

The minority report of the lame-duck Missouri Basin Survey Commission—advocating a state-federal compact approach to basin development—loomed last week as a possible starting point for the new Administration in evolving its "states' rights" concept.

A majority of the Truman-appointed survey commission (ENR Feb. 26, p. 24), recommended a five-man federal commission to direct the planning, construction and operation of water resource development projects in the basin.

• **Governors take stand**—These proposals of the minority were in keeping with the Republican philosophy of regional water resource development as expounded in the recent campaign. And, having a hand in their authorship, were Sen. Milton R. Young and Rep. Clifford R. Hope.

The Republican governors of Nebraska, Montana and South Dakota told ENR they were inclined to favor the minority report. Declared Gov. Sigurd Anderson of South Dakota: "I do not favor the Missouri Basin commission proposed in the report. I am more inclined to favor the recommendation of the minority which suggests the use of an interstate-compact plan approach wherein the coordination of the states and the federal government would work out the basin development program and administer it. This would be in line with the plan . . . suggested by the Missouri River states committee."

• **Democratic viewpoint**—The same sentiment persisted among Republican legislators in the basin states. But, on the other side of the aisle in the Montana legislature, state representative Leo C. Graybill, had this to say: "I am pleased at the recognition by the bipartisan commission that some central administrative power is needed to do the job of valley development. I commend the majority's willingness to go beyond the existing impotent interagency committee and get a supervising commission with authority to do the job of development so essential to Montana and other basin states."

Outlook good for concrete pipe makers

Manufacturers, in Dallas meeting, see need for more vigorous promotion campaign; no shortage forecast

J. R. Carr
Associate Editor

What's ahead for the concrete pipe industry is a future of increasing competition and increasing need for research and promotion, members of three major associations were told in Dallas last week.

The occasion was a four-day joint session of: the American Concrete Pipe Assn. (the 45th annual session); the American Concrete Pressure Pipe Assn. (fourth annual); and the American Concrete Agricultural Pipe Assn. (third annual). The meetings weren't large—total registration was about 350—but they represented the major segment of the multi million dollar industry and its associated interests in the U. S., Canada, and a dozen foreign countries.

• **Outlook for 1953**—Out of the papers—some of them highly technical—and the discussions, one thing emerged clearly:

All three groups have a number of problems in common. They must capture a greater part of the market for water, sewer and drainage pipe; must improve their product by continued research; must drive for a wider acceptance of pipe through improved manufacture and installation methods.

Howard S. Peckworth, managing director of all three associations, made this clear in his annual report to the ACPA. He said that total production of pipe in 1953 should be in the neighborhood of 11,000,000 tons—the equivalent of seven lines of 30-in. pipe stretching from New York to San Francisco.

"But," said Peckworth, "you must do a better job of selling to the consumer—and you must do it at the local level, not exclusively through the top echelons of the federal agencies."

He warned the association of three conditions that need correcting, to avoid loss of future business: improved bedding and backfilling procedures; higher permissible limits of fill based on good design and proper bedding and backfilling; and better joints, to permit higher hydraulic coefficients for the pipe.

And he added comment on what he called a significant trend toward larger pipe—10-ft dia pipe being no great rarity today.

• **More pressure pipe**—S. W. Freese, Fort Worth consulting engineer, told a technical session of the ACPA that the increasing use of concrete pressure pipe is due in large measure to the fact that cities are going farther and farther for water supplies.

Other speakers included: Lorenz G. Straub, director, St. Anthony Falls Hydraulic Laboratory, who spoke on superior characteristics of drainage pipe with rounded inlets; L. H. Tuthill, concrete engineer, Bureau of Reclamation; Howard G. Curtis, chief of canals and pipe lines section, Bureau of Reclamation.

• **Officers**—Ivy H. Smith of Jacksonville, Fla., was elected president of the American Concrete Pipe Assn.; Ray A. Foley, Dallas, became president of the American Concrete Pressure Pipe Assn.; and J. W. Porter of Dallas was reelected president of the American Concrete Agricultural Pipe Assn.

Defense bid advertising to await job approval

An order by Defense Secretary Charles E. Wilson, effective March 1, required the three military services to stop bid advertising of proposed construction projects until each job has been approved by his office.

Director of Installations Frank R. Creedon explained that the Defense Department doesn't want to put contractors to the trouble and expense of estimating and submitting bids for jobs that will never be awarded. Projects, hereafter, will be cleared before bids are asked.

Creedon's explanation puts a new complexion on the Wilson economy directive of Feb. 4 (ENR Feb. 12, p. 21). The Defense Secretary apparently intends to be tougher about approving awards than most construction people at first assumed.

A further slowdown of contract awards for military and Naval public works will result from last week's supplemental memorandum. Under Wilson's original order, bids could be taken while a project was being reviewed, and the award could be made as soon as the Defense Secretary cleared the job as essential.

Now the project clearance must precede advertising for bids. The process of advertising, taking bids and determining the low bidder probably will takes an average of six weeks.

Before last week's amendment, construction officers assumed that awards would be delayed one to two months. With the additional postponement on bid advertising, the cumulative delay is more likely to be two to four months. At a contract awarding rate of $250 million a month planned by the military services, the amended economy directive may set back awards $700 million or $800 million.

If the freeze on job clearances should be ended, the setback presumably could be made up in the next eight to ten months, but the tough policy invoked by the Defense Secretary makes it doubtful for the present whether recovery could come that fast in military construction awards.

Even before Defense Secretary Wilson stopped the advertising of military construction jobs, Army Secretary Robert T. Stevens had put the budget economy order into full effect for flood control and navigation projects. He instructed the Army Engineers to stop contract awards, advertising and acquisition of land for civil works until the projects had been cleared with him. As the Army Engineers are the agents of Congress on these civil works, Secretary Stevens is the responsible department head who has to approve them as essential.

Construction officers of the services cannot hold up all maintenance and repair jobs during the freeze. Accordingly, some of the officials in their own responsibility are authorizing field offices to award maintenance and repair contracts up to a limited amount—say $50,000—without clearance by Washington.

City finds zoning blocks industrial growth

A shortage of available industrial sites within the city limits is hampering the growth of Rochester, N. Y., Lee McCanne, executive vice-president of the local chamber of commerce, declared at a recent meeting of the City Planning Commission.

The city's present zoning law was designed chiefly for the protection of home-owners, McCanne said—even to the extent of permitting home construction in areas not well adapted for residential use. McCanne would like to see a revised zoning ordinance to protect industrial as well as home sites.

As a result of the failure to designate industrial zones, McCanne added, "we now have about four large companies looking for properties of from 25 to 50 acres." Corporations seeking new sites, he said, are aware that large plots are required to provide necessary parking and consequently, believe that the plot of 25-50 acres is a minimum size. The presence of only one or two houses has made some sites of this size unavailable, McCanne observed.

Ohio Turnpike Commission expected to appeal if asphalt ruling holds

The Ohio Turnpike Commission is expected to appeal if the court upholds a referee's ruling obligating it to accept competitive bids for both asphalt and concrete construction on the 241-mi Ohio toll-road project.

A decision is due before March 10 by the Ohio Second District Court of Appeals on the referee's findings in an action brought against the turnpike commission by asphalt interests (ENR Feb. 26, p. 21; Dec. 4, 1952, p. 25; Nov. 27, 1952, p. 24).

The court referee held that evidence pointed to "some kind of understanding or arrangement" as early as July, 1951, between T. J. Kauer, chief turnpike engineer, and the J. E. Greiner Co., Baltimore engineering consulting firm, that "only rigid pavement would be considered."

Although the consulting engineers' final report was not adopted by the turnpike commission until Sept. 4, 1951, according to the referee, he held that Greiner Co. ceased figuring on flexible pavement after July 11, 1951, and that in August, 1951, Kauer made commitments with nine Portland cement companies to furnish material for the turnpike.

• **Kauer disputes findings**—Commenting on the referee's findings last week, Kauer contended that the decision in July, 1951, to use concrete for the turnpike was neither his nor the Greiner company's. "The decision was reached," Kauer declared, "by the commission after a public hearing." "The Greiner report, based in part on that decision, was made Aug. 15, 1951," he declared.

As for the commitments of the cement companies, Kauer asserted they were made voluntarily by the firms after the asphalt industry had questioned, at the commission's hearings, the ability of the cement industry to furnish enough material to build the turnpike.

A spokesman for the Greiner Co. in Cleveland said: "We are proceeding on the present basis. If the judge accepts the referee's decision, it probably will be appealed." Asked what will happen if the decision is upheld, he declared: "We practically will have to make a new set of plans." He said that if the ruling stands it will be "necessary to take alternate bids on almost anything."

• **Cleveland case cited**—Kauer, when asked if the referee's ruling meant the commission would be forced to accept the lowest bids for surfacing—which undoubtedly would be asphalt—contended the commission has the right to decide what materials it wants to use in building the turnpike.

The turnpike engineer cited a case some years back relative to the Cleveland Airport. Both asphalt and concrete companies bid on the work, Kauer recalled. Bids for concrete were higher but the city of Cleveland choose concrete and let the contracts. The asphalt industry took the matter to court. Decision was that the city had the right to choose the materials.

"I believe the commission has the same right," declared Kauer. "And," he added, "if we must take alternate bids on the two materials, someone must decide on what the alternate to 10 in. of concrete will be."

"Will it be four inches of hot mix on top of macadam on top of aggregate to a depth of 26 in.—or 28—or what?" he asked. "Even Mr. Shafer (Robert H. Shafer, president of Ohio Road Improvement Co., the asphalt firm which brought the suit) told the referee that, in his opinion, the best paving would be hot mix on top of concrete." Kauer declared.

Survey indicates VA mortgage difficulties

A 28-city survey of the state of the Veterans Administration mortgage situation by the National Association of Home Builders shows:

• VA money limited or non-existent;
• VA mortgages are selling at discounts of 1-7½% in city after city;
• In many cities banks and other lenders are demanding much higher down-payments than the 5% permitted in the law.

The survey is part of the drive of the association, and other lenders, to get the present 4% ceiling rate on GI mortgages lifted in order to get more credit for veterans housing. Plan is to use the information to pressure Congress and the Administration for boost in the rate.

The typical example of the situation reported by NAHB representatives throughout the country is Rochester, N. Y., where VA loans are being discounted up to 2½%. Many banks will not handle VA loans and all refuse advance commitments, according to the report.

Incodel denounces report of Pennsylvania on water

The Interstate Commission on the Delaware River Basin has issued its anticipated denunciation of recent recommendations by a Pennsylvania water resources committee, which had advised that Pennsylvania reject the so-called Incodel plan, and proposed an independent water supply scheme (ENR Feb. 19, p. 48).

The statement issued by Incodel said in part: "This philosophy of isolationism is utterly contrary to the principles which the Pennsylvania Commission on Interstate Cooperation and its counterparts in other states of the union are trying to foster."

The report of engineers who advised Pennsylvania's study committee was still not available, but last week was being printed for distribution. A resolution calling for public hearings on the study-committee findings (ENR Feb. 26, p. 26) remained in the hands of the state government committee.

San Francisco San Rafael bridge contracts awarded

Contracts totaling $35 million were awarded in San Francisco last week for the $62-million Richmond-San Rafael bridge to be constructed across the north arm of San Francisco Bay (see also p. 19).

Work on the bridge is expected to start within 15 days. Norman A. Raab, a project engineer for the State Department of Public Works, said the span should be ready for use by mid-1956.

The California Toll Bridge Authority let contracts totaling $14 million on the substructure and steelwork to Ben C. Gerwick, Inc., San Francisco, and Peter Kiewit, Omaha, Neb. And $21 million for the superstructure steelwork to Judson-Pacific-Murphy Corp., Emeryville, and Peter Kiewit.

New York considers corporate engineering bill

Bills have been introduced in the New York State legislature amending the Professional Engineering licensing law to permit corporations to practice engineering. Present law confines corporate practice to those corporations conducting an engineering business before passage of the so-called corporation amendment in 1935.

Under the proposed revision, a corporation may practice engineering "provided that an officer and the person or persons in responsible charge of its engineering activities . . . shall be a licensed professional engineer." The amendment would also permit corporations to use the words "engineer" or "engineers" in their title.

Claims are that the better tax position of corporations and their ability to put aside reserves to carry them between jobs will help stabilize engineering employment.

Shift in streams policy seen as sign of progress

Ohio water-pollution control policy took a new tack late last month, in time for Director of Health John Porterfield to explain the shift in his speech to the second annual Ohio Water Clinic which assembled in Columbus.

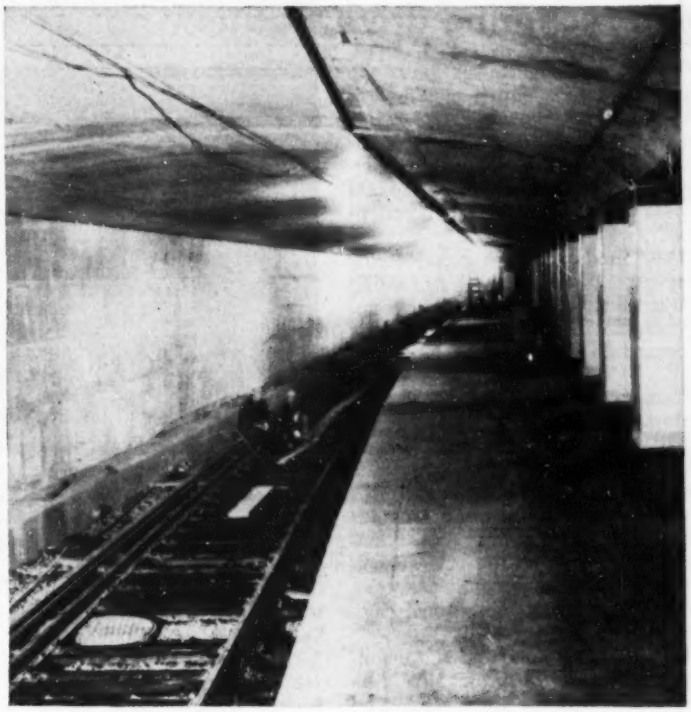
The change in policy—not radical, but significant—puts Ohio's system of issuing limited permits on a voluntary application basis for industry. Previously, the plan had been to require no permit of industry through hearings until its particular wastes had been established as treatable. Now, industries for which no hearings have yet been held may apply for a permit voluntarily.

The permit system—key to Ohio's whole program under its effective new law (ENR Oct 9, 1952, p. 24)—is a timetable arrangement of giving cities and industries a certain period of months in which to produce plans, construct works or improve treatment, as the case may be. With permits already issued to 508 municipalities and 351 industries, Ohio chose to take advantage of a prevailing cooperative attitude of industry by requiring the costly and time-consuming hearings only in cases of appeals or non-conformance, Dr. Porterfield reported to the clinic.

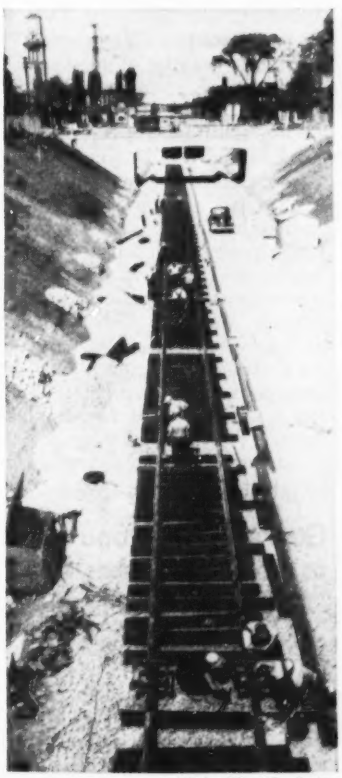
This praise of industry's attitude toward pollution abatement was heard by nearly 150 engineers from industry among 275 delegates attending the two-day clinic at Ohio State University. And it evidenced a year of great progress since a more wary delegation from industry met with a less confident group of pollution controllers for the first Ohio Water Clinic which was convened last February (ENR Feb. 28, p. 19).

• **A-plant water**—Robert C. Smith, of the Ohio Department of Natural Resources, told the clinic of water worries brought on by the coming influx of a 30,000 peak construction force into Pike County (pop. 17,000) to build the nation's latest atomic energy plant. There will be ample water in surface or groundwater supplies to meet the 40-mgd make-up water need of the vast plant. That's one reason why Pike County was chosen.

The real worry will be in supplying water to about 50,000 people who will inhabit the area for a construction period of about four years. There is water aplenty for them, but it is not available everywhere. The problem will be to prevent indiscriminate location of housing and trailer camps. Proper management will have to put the housing where the water is.



Canada's first subway progresses



Wide World photos

Work on Canada's first subway—running under Toronto's Yonge Street, the city's main north-south commercial route—is moving toward its scheduled completion at the end of this year. The project includes three miles of two-track subway under the downtown area and a mile and a half of open cut (ENR May 24, 1951, p. 30; Sept. 11, 1952, p. 51).

Construction began in September, 1949, in the downtown area. The subway section was built by the cut and cover method, one or two streets being opened at a time to keep traffic interference at a minimum. The 500-ft loading platforms and tracks are nearly complete in this area, as shown by the above photo taken at one of the line's 12 stations.

Principal construction activity is now in the open-cut section (left) where workmen are now laying tracks. The open-cut phase involves construction of a switching yard, maintenance shops and six bridges.

The subway, total cost of which will be about $50 million, is being built by the Toronto Transportation Commission, which is doing its own track laying and installation of signal equipment.

Work on the project is being done by a syndicate made up of three American and four Canadian firms.

Engineer-scientist employee groups plan recruiting drive, set new goals

The first national convention of the Engineers and Scientists of America, held in Los Angeles Feb. 21-23, spent most of its time laying plans for increasing its present 40,000 membership to include the rest of the 400,000 eligible employed engineers and scientists.

The 35 delegates who attended now represent 10 collective bargaining groups of engineer and scientist employees. ESA expects four more units to come into the federation by July 1.

JOSEPH AMANN, of Minneapolis Honeywell Regulator Co., was elected president of Engineers and Scientists of America at its first national convention in Los Angeles.

• **Position on Taft-Hartley**—The convention went on record on one national issue—the Taft-Hartley Act. It plans to present its position on the amendment of the act to Congress this month and will emphasize its hope for continuance of the professional employee provisions of the act, guaranteeing the choice of separate collective bargaining units for professional engineers and scientists.

ESA also will hold that the definition of supervisor in the act should be amended to include only those who have true management functions. It will push for full bargaining rights for governmental employees and legally-guaranteed overtime benefits for more engineers and scientists.

Joseph Amann, senior process engineer of Minneapolis Honeywell Regulator Co., was elected president for the coming year. Also elected were John Taft, Westbury, N. Y., vice-president; Orville Underwood, Minneapolis, secretary; Lloyd Shuman, Seattle, treasurer; and Arthur Marin, Newark, N. J., and George Stosskopf, Los Angeles, executive committeemen.

• **Objectives outlined**—Amann listed the three major tasks for member group bargaining as: 1. Providing equitable compensation for engineers and scientists "based upon their contributions to society," 2. Removing inequities based on the "declining value placed upon experience," and 3. Providing sufficient overtime compensation, so that "employers will stop using engineering overtime as a money-saving device and a buffer for poor planning."

He declared that "economic weapons such as strikes should be resorted to only when all other means of settling the differences have been thoroughly explored and found unworkable."

The member groups of ESA are: Minneapolis Federation of Honeywell Engineers, Minneapolis Honeywell Regulator Co.; Association of Professional Engineering Personnel, RCA Victor Division; Engineers Association, Sperry Gyroscope Co.; Engineers and Architects Association, Lockheed, Convair, city and county of Los Angeles, Rheem Manufacturing; Engineers Association of Arma, Arma Corp; San Francisco Area Group Professional Employees, Pacific Gas & Electric; Western Association of Engineers, Architects and Surveyors; TVA Engineers Association, Tennessee Valley Authority; Seattle Professional Engineering Employees Association, Boeing; Council of Western Electric Technical Employees-National, Western Electric; and Engineers Guild of Oregon, State of Oregon.

Expected to join the ESA Federation by July 1 are: Research and Engineering Professional Employees Association, Standard Oil of Indiana; Association of Engineers and Engineering Assistants G-E Philadelphia Switch-Gear Works; Southern California Professional Engineers Association, Douglas Aircraft Corp., Southern California Gas Co., Los Angeles Department of Water and Power, and Association of Industrial Scientists, Shell Development Co.

Georgia, Montana create toll bridge authorities

Georgia and Montana state legislatures have adopted measures creating toll bridge authorities, and the former has established a free bridge authority as well.

The Georgia toll bridge measure passed on the understanding that such projects would be limited to main highways regularly used by tourists—places where traffic studies indicate required revenue potential. Such bridges would be few but the most costly ones.

The free bridge authority is empowered to issue up to $30 million in revenue certificates to finance construction of bridges which will be rented by the State Highway Department. Rental fees will amortize the revenue certificates issued by the authority.

The Montana toll bridge measure provides that the authority be composed of members of the State Highway Commission. Costs of surveys will be paid out of the commission's funds but will be repayable from toll receipts. When bridge bonds are retired from toll receipts, the bridges will be maintained by the highway commission as free bridges.

Prior to final passage, the Montana measure was amended to provide that no toll bridge may be constructed across any stream within a radius of 50 mi on either side of any existing free bridge across the same stream unless by petition signed by at least 20% of the taxpayers in the counties involved.

The main purpose of the bill is to clear the way for construction of bridges across the Missouri River between Fort Benton and Wolf Point, an area in which there are no bridges for a stretch of more than 200 miles.

Pennsylvania Turnpike accident probe opens

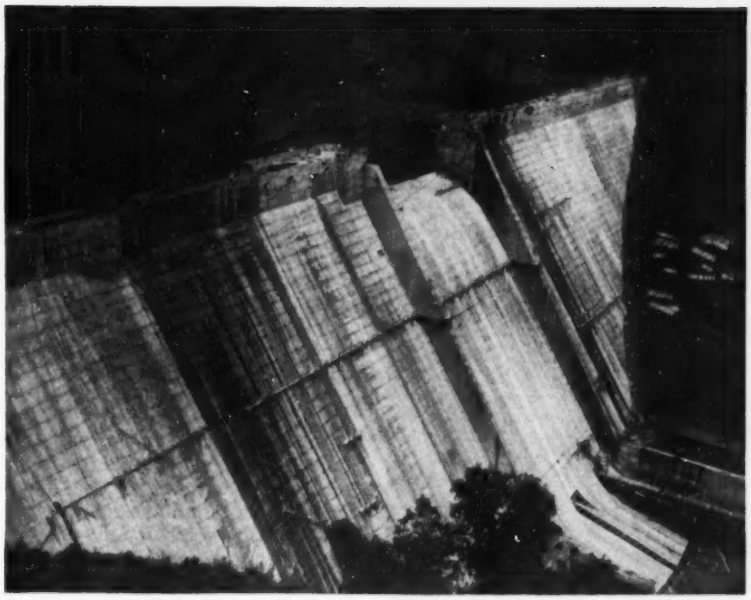
A state legislative committee has begun investigation of measures for curtailing the accident rate on the Pennsylvania Turnpike.

Although figures just released show an improved safety record for 1952 and a fatality rate identical with that for the country as a whole, a death toll of 14 before the end of February as compared with 11 for the first two months of last year has spurred the legislative inquiry.

T. J. Evans, chairman of the Turnpike commission, however, has pointed out in connection with the rise in fatalities in the first two months that "nearly 110,000 more vehicles have used the turnpike this year than during the similar period last year."

The commission's figures for last year, when 83 persons met death on the 327-mi expressway, show 7.3 fatalities per 100,000,000 vehicle miles traveled as against 8.5 in 1951 and 12.4 in 1950.

The corresponding figure for the nation, as compiled by the National Safety Council, is 7.3 fatalities per 100,000,000 vehicle miles traveled. The national figure was 7.7 in 1951 and 10.5 in 1950, well under the Pennsylvania turnpike toll in both years.



PHILPOTT DAM represents the second link in the proposed 11-project Roanoke River flood control and power program.

Philpott Dam construction completed

Philpott Dam, second of 11 projects planned for the Roanoke River flood control and hydroelectric program, has been completed and will be ready to produce power in the early spring.

A Corps of Engineers project, the dam and reservoir are located near Bassett, Va., on the Smith River 44 mi upstream from its confluence with the Dan River, a tributary of the Roanoke. Total cost of the project will be $13.3 million.

It is the second of the dams planned to cope with the flood threats of the Roanoke and its tributaries. The first was the much larger $88-million John H. Kerr Dam and reservoir project at Buggs Island, Va., which was dedicated last October (ENR Oct. 6, 1949 and Oct. 9, 1952).

• **For power, flood control**—Philpott Dam is a concrete structure 892 ft long with a maximum height of 220 ft above foundation. The spillway, which is at El. 985, is 120 ft long. There also are three sluices near the base of the spillway section, controlled by hydraulically operated slide gates within the dam, to supplement the spillway. Each sluice is 5 ft, 8 in. wide and 10 ft high. Two small conduits, each of 12-in. dia, are provided to pass sufficient water to satisfy low-discharge requirements when the power station is not in operation.

The powerhouse, a steel and concrete structure located immediately downstream from the dam, will house three generating units. Turbines will be of the vertical-shaft Francis type. The two main generators will have a normal rating of 6,700 kw each and the station service generator of 600 kw.

• **Reservoir storage**—The reservoir will have a length of 17 mi and a maximum width of one mile, and will cover an area of about 6.3 sq mi. It will have a total storage capacity of about 250,000 acre-ft, of which 82,400 acre-ft of storage space will be reserved for flood control. This storage is sufficient to control a flood about two and a half times greater than the 1937 floods that menaced the area.

Dam construction, costing $6,671,000, was a joint venture of Bates & Rogers Construction Corp. of Chicago, Morrison-Knudsen Co. of New York and Peter Kiewit Sons of Omaha. Other principal construction contractor was J. A. Jones Construction Co. of Charlotte, N. C., builder of the powerhouse at a cost of $1,178,995.

Colorado runoff down

Colorado River runoff this spring might drop 60% from last year's record, but there is enough hold-over storage in Lake Mead, the reservoir above Hoover Dam, to handle irrigation and other uses next year. The lake, which has a storage capacity of 31 million acre-ft, is expected to drop about 10 ft between now and early April—its low point.

Green River navigation improvements proposed

Navigation improvements on the lower 103 mi of the Green River have been proposed to permit river shipment of coal from western Kentucky fields.

Army Engineers have recommended projects costing $16.4 million. They include clearing and dredging the channel for a width of 200 ft and a depth of 9 ft and construction of new locks 84 x 600 ft at Dam No. 1 at Spottsville, 9.1 mi from the mouth of the Green and at Dam No. 2 near Rumsey, 63.1 mi upstream.

The work would involve switching lock sites from the left to the right bank of the river.

Coal shipments, expected to total about 5,500,000 tons per year, will go to TVA thermal power plants and to power facilities at Madison, Ind., which serve the Pike County atomic energy plant in Ohio.

The proposal for extending the Ohio River's 9-ft channel 103 mi up the Green is subject to review by the Army Engineers Rivers and Harbors Board.

Views on the recommendation will be accepted by the board up to March 17.

Virginia Beach sanding operations recommended

Maintenance of the newly restored beach at Virginia Beach, Va., may require putting down about 750,000 cu yd of sand at three or four-year intervals over the next 15 years.

A report from Myron Sturgeon Engineers, containing this opinion, also confirmed the firm's recommendation that the resort's erosion commission build two 500-ft jetties at Rudee Inlet, south of the city, to maintain a 250-ft channel from the ocean into Lake Wesley.

The future need for sand, plus the fact that only about 150,000 cu yd remain available in the Lake Wesley-Rudee Inlet area, has led engineers to take into consideration two sources of supply.

One possible source is a nearby area from which sand could be pumped to Lake Wesley and "stored"; the other source is the ocean floor.

If the ocean floor is tapped, it will be necessary to provide a safe refuge for dredging equipment.

Lake Wesley was suggested as a safe harbor in the event a permanent channel into the lake is to be developed and maintained.

Building back of the beach last year resulted in more than 1,250,000 cu yd of sand being pumped from the Rudee Inlet-Lake Wesley area.

Gray asks exemption for construction

Declares that the industry should not come under the Taft-Hartley act—Senator Taft disagrees

Inviting contractors to join the building trades unions in seeking amendment of the Taft-Hartley labor law, Richard J. Gray, president of the AFL Building and Construction Trades Department, last week also suggested that the industry might be exempted from the law entirely.

Gray told a luncheon meeting of the U. S. Chamber of Commerce's Construction Industry Advisory Council in Washington, D. C., that the invitation was one step toward labor-management cooperation in trying to work out the industry's labor problems. Ninety-nine per cent of construction strikes, he said, "are directly attributable to a lack of mutual understanding between management and labor."

The labor leader said he did not mean to infer that either contractors or the unions were "totally at fault." He put most of the blame on Taft-Hartley, citing as a "glaring example" the inability of the AFL to get redress under the law during the five years it has been complaining of unfair labor practices in the construction of Bull Shoals Dam in Arkansas. Meanwhile, Gray said, the contractors—principally Brown & Root of Houston, Tex.—have completed the job and obtained another government contract.

Finding fault with the new Taft-Hartley amendment offered by Sen. Robert A. Taft to give some relief to the industry, Gray made the suggestion—for the first time publicly—that one solution might be to exempt construction from Taft-Hartley. He noted that the Wagner Act, which Taft-Hartley amended, was not applied to construction. Neither law was made to fit construction.

Senator Taft, who has worked closely with Gray on planned revision of Taft-Hartley and who has recognized that the labor law is ill-fitted for the construction industry, does not go along with Gray's suggestion that the industry be exempt from the law. Instead, the Ohio senator told Engineering News-Record, the law should be revised where necessary to make it fit the construction industry.

• **Amendment's faults**—What Gray doesn't like about the new Taft amendment—S. 656—is that it would give precedence to state laws, which restrict union-security contracts even more severely than the union shop provision in Taft-Hartley. The Taft-Humphrey amendment (S. 1973) which passed the Senate last year—and died in the House—would have superseded the state laws with respect to union-shop contracts in construction. In other respects, the two amendments are identical, permitting labor-management contracts before work begins on a project and allowing union-shop agreements, where legal, to require membership in seven days instead of the usual 30 days.

RICHARD J. GRAY, suggests that construction be exempted from Taft-Hartley

Gray complained that it seemed inconsistent to put construction under Taft-Hartley—"on the pretext that the industry affects commerce"—and at the same time permit individual state laws to "restrict the functions of such an interstate commerce industry."

"We could explore together the possibility of taking the building industry out of the Taft-Hartley Act altogether," Gray suggested, pointing out that many labor laws—child labor, industrial safety, workmen's compensation, disability insurance and others—are state regulated.

• **Basic facts**—Gray listed these "basic facts" which complicate application of T-H to the construction industry:

• The highly organized nature of the industry and use of skills which take years of training.

• Lack of employment stability.

• Inability of the National Labor Relations Board to conduct elections in the industry which would entitle the building trades unions to the many rights and privileges which go with official "certification," including union-security contracts.

• The necessity for making contracts in advance of the start of construction so that a contractor can compute wage costs in making up a bid.

Mason contractors need more journeymen masons

A discouraging picture of the future supply of masons was presented at the third annual meeting of the Mason Contractors Association of America, held in Chicago early last month (Feb. 1-4). The four-day meeting had a total registration of 1,300, plus 1,000 visitors to the suppliers' exhibits.

Despite existing apprenticeship programs in the mason trades, said Norman J. Schlossman, vice-president of the American Institute of Architects and a member of the Chicago architectural firm of Loebl, Schlossman and Bennett, graduates of such programs in the Western states are able to fill only 45% of the current need for journeymen. There must be intensified training programs and more applicants, he said, if the industry is to meet its competition in the building program that lies ahead.

Some idea of the magnitude of these programs was presented by Roy W. Wenzlick, St. Louis economist. He predicted, in brief, that during 1953, 975,000 dwelling units will be started in the non-farm areas. The dollar volume of other construction this year compared with 1952, said he, will be about as follows: commercial building up 25%; industrial building down 25% (50% of our industrial capacity today is less than 6 years old); social and recreational construction up 25%; church and religious construction up 10%; educational institutions up 6%; public construction up 6%; little change in public hospital construction but about 10% more private hospitals. The total of all types of construction will not vary more than 3% from last year's total, he said, but it probably will be down.

William F. Nelson, Washington, D. C., was reelected president of the association. Newly elected officers are: Wm. Rainey, Jr., San Francisco, first vice-president; John Taheny, Chicago, treasurer; and R. R. Sneed, Nashville, Tenn., secretary. George A. Miller is executive secretary of the association, headquartered in Chicago.

NLRB chairman wants less power

Herzog asks for amendments to permit board to turn local controversies over to state labor boards

Testifying before the House Committee on Education and Labor last week, Paul M. Herzog, chairman of the National Labor Relations Board, requested that the board be permitted to "cede jurisdiction over local controversies to state labor boards."

In his opening statement to the committee, Herzog declared that the board seeks "not more power but less" in its administration of the Labor Management Relations Act of 1947—the Taft-Hartley Act.

He also expressed the hope that Congress would not enlarge the board's role in labor-management affairs "because the freedom of American employers and labor organizations, dealing from approximately equal strength, to make their own collective bargains with a minimum of government intervention, still seems to us the best road to industrial stability."

PAUL M. HERZOG, chairman of NLRB, made suggestions for changing labor law.

• **Local controversies**—Herzog called attention to the fact that the law now makes it almost impossible for the board to cede jurisdiction over local controversies that have only a negligible effect on interstate commerce to state labor boards. Under the present act, he said "We cannot cede any cases to state tribunals, unless there are enforcing statutes substantially identical with the federal law."

As there are no such statutes, there has been no cession of jurisdiction since 1947, he added.

Herzog then suggested that the board be authorized again to negotiate cession agreements with state boards—as before 1947—deciding on the basis of experience and necessity exactly where the line of demarcation should be drawn.

• **Non-Communist oath**—Herzog's second major request for a change was on the non-Communist affidavit provision, which, he said, ". . . has outlived its usefulness."

He asked that the board be relieved of the duty of administering whatever further policy Congress adopts in dealing with Communists in labor organizations.

After reciting the difficulties and evasions which the board has encountered, Herzog suggested that the non-Communist affidavits be eliminated from Taft-Hartley and that investigation of Communist leadership in labor groups be given to some outside tribunal—such as the Subversive Activities Board.

• **Clarification desired**—Herzog asked Congress to clarify some parts of the act, upon which the board has had difficulty in deciding cases. In some instances the board has been split 3-2, and in others three possible interpretations have been advanced.

Here are the areas of uncertainty which the board wants cleared up:

• Should de-authorization (especially of union shops) be permitted in the middle of a contract term? And if so, how soon after the election should a vote to rescind the union-shop take effect?

• In giving the board power to adjudicate jurisdictional disputes: Did the Congress mean only disputes between different unions both of which are employed by the same employer? (This is the usual case in the building trades.) Or did Congress also mean controversies arising when an outside union, whose members are not employees, asks for the work under question?

• Concerning the section of the law which relieves either party to a labor contract from the "obligation to bargain" on a point discussed by the parties, but not written into the contract, can these points be reviewed during the life of the contract?

• Did Congress mean to impose "loss of employee status" on those who strike during the last 60 days of a contract even though the strike was caused by the employer's unfair labor practice?

• The board also asked for better definition of the word "guards" in respect to whom the law made special provision concerning union affiliation.

Prevailing wage bill killed by Oklahoma legislators

A bill requiring payment of "prevailing wages" on state highway construction jobs was killed last week by the Oklahoma House of Representatives.

As introduced, the measure called for payment of the prevailing wage as determined by the U. S. Department of Labor under the Davis-Bacon Act.

The bill had strong backing from labor groups.

Governor Murray promptly announced his opposition in principle to such measures and his administration floor leaders fought the bill.

C. A. Stoldt, director of the state highway department, estimated that passage of the measure would raise state highway construction costs 25%.

He predicted that the proposed $70-million, two-year highway construction program would result in less physical improvement for the money spent if the bill passed.

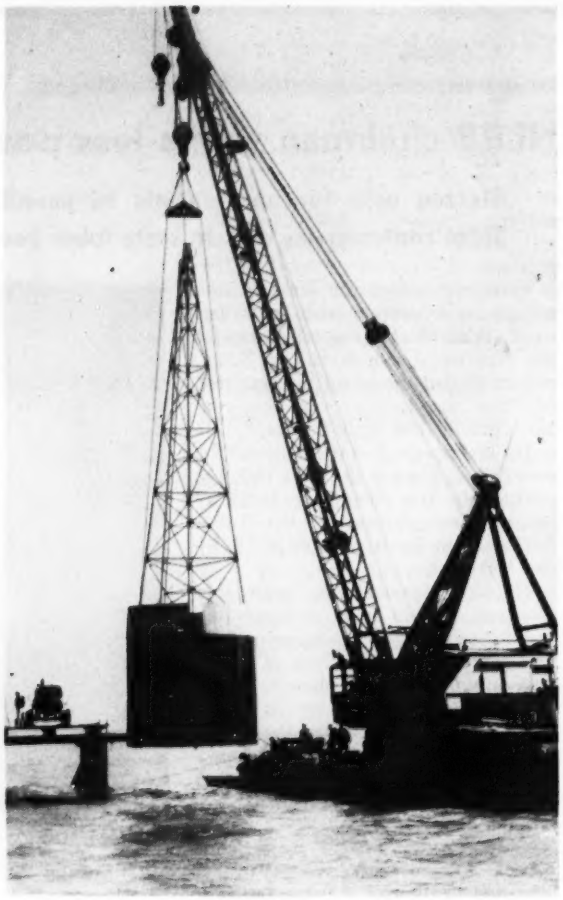
Paducah A-plant constructor gets safety commendation

F. H. McGraw & Co., constructors of the $1-billion atomic energy plant at Paducah, Ky., established one of the best national safety records for 1952, according to recent reports of the National Safety Council.

While the accident frequency rate for the general building construction field was 39.6 in 1952, according to the Bureau of Labor Statistics, and member firms of the National Safety Council had a frequency rate of 20.9, the McGraw firm and its subcontractors on the atomic energy project had a frequency rate of only 3.19.

Safety ratings are determined by the number of disabling injuries per million man-hours worked.

Deep-water piers are precast concrete



BARGE-MOUNTED CRANE places 60-ton transmission tower leg base in a 60-ft depth of San Francisco Bay water. Tower temporarily bolted to precast concrete cylinder is used to assure correct alignment of the heavy unit. (ENR Staff photos)

RECENT CONSTRUCTION of deep-water transmission tower foundations for a line crossing the south arm of San Francisco Bay was facilitated by use of heavy precast concrete units. The method was credited with effecting a substantial saving over caisson or coffer-dam systems.

The power line is a $3.3-million part of the postwar expansion program of the Pacific Gas and Electric Co., necessitated by population and industrial growth in California. The 10-year (1946-56) program will provide close to 3,000,000 kw of new generating capacity at a cost of $1 billion, making it one of the largest private capital investments in construction history.

The 220-kv line is 32.9 mi long and includes 139 towers. Only 19 (2 deep water and 17 shallow water) of these are in the bay. Others are on dry land, in salt ponds, or in marsh areas.

Located to cross the bay instead of skirt it because construction and right of way was cheaper, the line could only be built if foundation costs were reasonable. Because it is just 113 ft south of the San Mateo-Hayward highway bridge, the transmission line will be protected from drifting craft, and soundings and pile-driving data were readily available along the bridge route.

In their planning, PG&E engineers studied several alternate schemes for the underwater foundations. They estimated that precast concrete foundations would be substantially cheaper than coffer-dam or caisson methods.

Contractor for the foundations—Ben C. Gerwick, Inc., San Francisco—finished the pier work late in January. Some four months will be required for PG&E crews to erect the towers and string the lines.

The deep-water piers were the most complex of the many tower foundations, and so the following will comprise a description of construction of these foundations. Similar techniques were used for the shallow-water piers—and the economies of precast construction over other means hold for the 17 shorter piers, too.

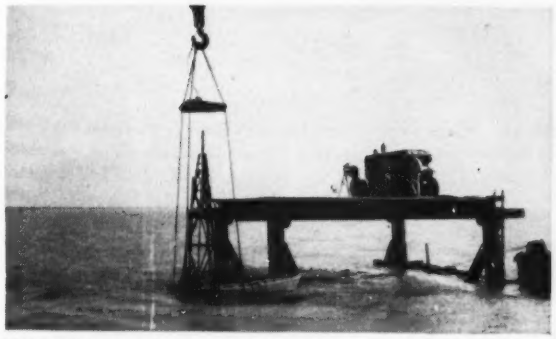
• **Details**—The deepest two piers also support the highest towers (298-ft). That is further reason for greater size in the various members. The towers are designed to take an unbalanced load that would result from fracture of two of the six conductors. This gives an unbalanced tensile force of 8,400 lb each at 25° F and with a 14-psf wind load. A 10% seismic factor was also used.

Basic elements for the deep piers are four heavy reinforced concrete cylinders as bases (19-ft dia and 16-ft high), four 62-ft long shafts (7-ft dia octagonal shape) and four 46-ft long girders. The cylinders and shafts each weighed 60 tons, while the girders were each 50 tons. All units were cast in the contractor's yard located on a tidal creek off the north arm of the bay. They were barged the 50 miles to the job.

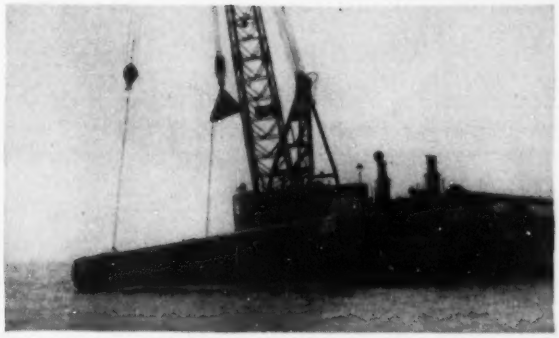
A 75-ton steam-powered derrick placed the heavy units. The barge on which this huge machine was mounted was maneuvered by anchor lines at each of its four corners.

Due to the size of the units, one of the keys to the success of the job was skill in handling the heavy lifts. (One of the design considerations PG&E engineers faced was whether equipment was available that could handle these offshore lifts.)

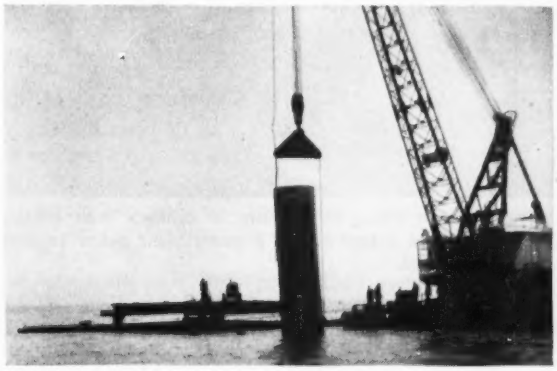
There was more, of course, to constructing the deep piers than making heavy lifts: Underwater piles had to be driven; some of the soft bay bottom had to be dredged, and concrete had to be poured in the heavy shells both



SURVEYOR ALIGNS TOWER for proper location of huge concrete cylinder 60-ft below. Temporary surveyor's platform supported by 24-in. pipe piles and H-pile units proved useful for a variety of purposes.



PIER SHAFT, 62-ft long, weighing 60-tons, is turned to vertical position just under water so extra buoyancy will permit better control. The 7-ft dia octagonal units later are filled with a reinforcing cage and concrete.



CRANE MANEUVERS heavy shaft unit into place as surveyor prepares to check alignment. Framework attached to work platform holds shaft until horizontal beams can be placed to brace the entire assembly.

BARGE-MOUNTED MIXING PLANT provides concrete for the 17 offshore piers. Aggregate, brought by barge, is loaded into hoppers by a steam crane. Crawler crane, minus treads, is bolted to barge deck for concrete placing.

by tremie methods and in the dry.

• **Piles first**—The two main piers are on each side of the main ship channel in a 60-ft water depth. First step was to dredge a 15 to 20-ft depth of soft clay from each tower-leg site. This permitted driving heavy, short, untreated timber piles into firm material. A cluster of 23 such piles was driven under each pier leg, with submarine leads and an underwater hammer. A diver with an air-powered saw cut the piles off 5 ft above the pier-base elevation. Then a sand blanket was placed around the piles.

The pier-leg bases were placed over the pile clusters, guided into position by a diver. A cage of reinforcing steel was fastened inside the shell. Included as part of the cage was a dished steel ring—9 ft dia—to serve as a seat for the 60-ton shaft to be placed later.

Bolted to the top of the base cylinders during placing was a 60-ft high pipe tower used to assure correct alignment of the heavy units. A triangular block spread the 1¾-in. dia lifting cables so they would not foul the tower.

A surveyor on a special platform aligned the units. The platform had four 24-in. dia pipe pile legs with H-pile batters for bracing.

The 19-ft dia cylinder was filled with tremie concrete up to the shaft seat level (4 ft from the top of the 16-ft high units). When the concrete had developed sufficient strength, the shafts were placed.

Handling the shafts was much like handling a concrete pile—except, of course, the shafts were heavier. They had to be picked up, turned to a vertical position, and placed. Here again, a diver guided the base into its final position.

The tops were held in place by a structural steel bracket attached to the surveying platform.

Reinforcing cages were placed in the shafts, and more tremie concrete filled the base cylinders and about one-third of the shafts. The remainder of the shafts were filled with concrete placed in the dry after the shafts were pumped out.

Final step in the assembly procedure was placing the 46-ft-long haunched girders that brace between the pier legs. Adjacent girders were set on different levels to prevent interference between reinforcing bars extending from the girders. A final plug of concrete was poured at each corner, binding the shaft and girders together and setting the tower anchor bolts.

• **Concrete-making barge**—The contractor built a floating concrete plant to handle both regular and tremie concrete. It included batch facilities and a 1½-cu yd mixer shortened as much as possible to lower the center of gravity of the assembly. A steam-powered derrick transferred aggregate from a barge to the batch unit. Cement was supplied in steel cans of 26 bbl capacity.

• **Shallow-water piers**—The main difference between the deep-water piers described in the foregoing and the shallow-water piers is size. The pier legs were each based on a cluster of five concrete piles with four driven on a batter. Some of the piles were as much as 108 ft long.

The design of the tower piers was prepared by the division of civil engineering, and construction was supervised by the construction department. Project manager for Ben C. Gerwick, Inc., was Don Weaver.

SUPERHIGHWAYS, built to take congestion from older routes, involve jig-saw fitting of location, to conform with existing utilities. Here New Jersey Turnpike threads under the older Pulaski Skyway, then swings around a power plant before crossing Passaic River (left), and the main lines of the Pennsylvania and Lackawanna railroads.

A modern highway engineer's task:

Locating super roads among existing utilities

Consulting engineer's experience on New Jersey Turnpike indicates need for public-relations ability

Eugene H. Harlow
Vice President

Frederic R. Harris, Inc.
New York, N. Y.

CITIES THROUGHOUT THE NATION are being strangled by a density of traffic that threatens their free growth and development. Ambitious programs of highway construction are in process and prospect to overcome this condition.

But construction of these new transportation arteries in highly developed areas will encounter many technical problems in relocation of public utility and municipal facilities. In addition, consulting engineering and construction companies will find themselves in constant negotiation with public and private groups concerned with such relocation problems.

The engineering specialist will find himself in the role of public relations practitioner as he enlists the cooperation of municipal groups, business and industrial organizations and private citizens. Practical engineering decisions often will depend on the public relations ability of the engineer.

Relocation of public utilities and municipal facilities requires engineering and public-relations solutions. In this connection, the construction of the northerly section of the New Jersey Turnpike provides an excellent case study for the highway engineer. For this high-speed expressway through the heart of the industrial complex of New Jersey, with its crowded residential areas, ran the whole gamut of utility relocation and the negotiations with several owners.

Passing northward through Linden, Elizabeth, Newark, Kearny, Secaucus, North Bergen, Ridgefield and Ridgefield Park, construction of this section required relocation of power, telephone, police, fire alarm and railroad signal lines, and gas, water and sewer mains. Problems involving other municipal properties, such as parks, airports were also encountered.

In all cases, service to the community had to be maintained, and frequently this required construction of a complete new section of the facility to replace the old, so that it could be cut into service without interruption. In general, the cost of all such work was borne by the Turnpike Authority. Frequently, where pipes or conduits required underpassing the turnpike and future increase in capacity would be expensive to build, an allowance for this increase was made in the construction. In such cases, the authority paid only for such increased capacity as was immediately planned; allowance for more remote developments was paid for by the utility.

Following are some typical problems met, and the solutions reached.

• **Tight clearance**—Just north of Raymond Boulevard in Newark, the turnpike passes west of the Essex Steam Generating Station of the Public Service Electric & Gas Co. Here the highway is on a viaduct, climbing on maximum 3% grade over Raymond Boulevard, beneath the Pulaski Skyway with minimum 15-ft clearance, and up to an overpass of the Passaic River. Clearance above high water at the channel line was a matter of long negotiation with the Department of the Army. Although all previous

structures had been built to provide 135 ft, a detailed study of river traffic finally demonstrated that 110 ft would not be detrimental to future needs of the metropolitan area. This clearance could be obtained by passing below a particular span of the skyway and across Public Service property destined for expansion of the high-voltage switchyard and transformer equipment at Essex Station.

• **Switchyards**—The utility company pointed out that it would not be safe or feasible to allow such equipment beneath a highway viaduct. Further, changing location of the transformers to another site would require extensive revisions to connecting lines and switchgear within the station as well as outside. This situation led to restudy of turnpike alignment and profile. Changes were made permitting adequate clearance of all existing outside transformers and switchgear, while future transformers will be located at another site. Future expansion of the turnpike viaduct, which will require a separate structure west of the existing one, will involve reconstruction of the truss structure of the Pulaski Skyway.

A similar situation developed at the Bayway Switching Station in Elizabeth. Here the turnpike is on fill, rises northward to an overpass of the Elizabeth River, via Public Service property that extends east to the Newark-Elizabeth branch of the Central Railroad of New Jersey. Space requirements of the interchange just north of the river required a turnpike alignment that swings away from the railroad close to the switching station, thus causing an interference with planned transformer equipment sites. Here again, the alignment was adjusted as far from the station as possible, and suitable property settlements were made with the utility company. In these cases, the adjustments to the alignment were greatly complicated by such factors as a transcontinental natural-gas line just east of the turnpike, two high tension crossings from the switching station east, drainage and access.

• **Transmission line**—In Kearny, some distance north of the Passaic River viaduct, the turnpike passes across the "Meadows" on a high fill beneath a 132-kv power line. The best possible alignment could not avoid one of the towers. Underclearance also was inadequate, making the construction of two higher towers necessary. As the existing tower line was on a right-of-way wide enough for a proposed second tower line, the new power wires were strung at slight angles on either side across these towers and the old towers were razed. The future second power line eventually will make use of the two towers now standing on either side of the turnpike. Provision was made for two additional towers on the alignment of the previous lines at this point. This method permitted relocation without prolonged interruption to service, and without the need for temporary lines.

• **Utility plant site**—In Ridgefield, south of Overpeck Creek, the turnpike crosses a 26-kv pole line, which extends over a 120-acre tract of meadow land owned by Public Service. A dual problem was encountered here.

The first part of the problem was the relocation of the pole line at a higher elevation and a better angle of crossing, closer to 90 degrees, with provision for access of maintenance vehicles along the pole line. Access was to be provided by a simple 12-ft. roadway carried along the toes of turnpike slopes on either side and beneath a viaduct structure which carries the highway over the New York Central and the New York, Susquehanna & Western railroads.

The second part of the problem involved division of the large tract of property into two portions, the westerly of which could not be reached by public roads. This property had been held by the utility company as the site for a new gas plant and a new steam electric generating station. Few, if any other tracts in this area are available with the necessary acreage adjacent to road, rail and water.

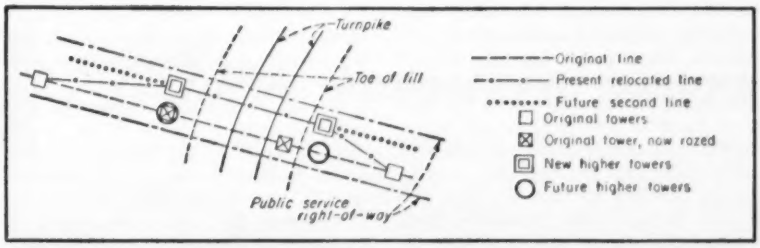
Solution of the problem required evaluation of the real estate severance. This, in turn, depended upon furnishing access to the westerly portion of the remaining land and upon its suitability for development.

• **Power distribution**—Extensive revisions to power distribution systems were required in the vicinity of the Raymond Boulevard interchange. A conduit line along the north side of the boulevard, two pole lines along the south side, and two overhead high tension lines some distance south, interfered with the toll plaza, bridges and extensive ramps of the interchange. All of the power lines were relocated underground in a single duct bank on the south side of the boulevard. The location passed at the toe of the slope of the south abutment of the turnpike viaduct, eastward beneath the high fill at the abutment of the bridge carrying ramps over Raymond Boulevard, and on to a manhole at Doremus Avenue, a distance of 1,200 ft, where connections were made to the former circuits.

• **Telephone conduit**—This conduit bank was combined with a reconstruction of existing telephone conduits at the location described. The telephone lines consisted of 36 tile ducts, carrying one of the two major systems of circuits between New York City and the south and west. Several of these were co-axial cables, carrying television networks as well. Even the shortest break in continuity of service in these lines would have meant substantial loss in revenue, as well as possible damage suits, where important long-distance calls were interrupted. Although the lines were not physically in interference with turnpike construction, the weight of new fill required for ramps and the impact of traffic required either relocation or underpinning to prevent settlement and breakage of the fragile tile lines, in their concrete encasement.

The solution adopted was to surround the duct bank in place with a concrete arch structure supported on timber piles, continuous for the full length affected by added fill. The dimensions of the arch were varied to fit the width of the existing duct bank, which in one area was split into two portions. Enough space was provided to accommodate the new duct bank for Public Service power cables within the width of the pile-supported foundation slab.

• **Insurance a problem**—One of the most troublesome features of this installation was the matter of insurance during construction. Separate bids on the construction had been asked from a selected list of contractors. Low bidder was the general contractor then performing the grading and



POWER LINE REVISION, to provide longer span over turnpike, uses new towers that later will carry a second line.

PAVED ROAD through Elizabeth, N. J., would cause more runoff than existing storm sewers would carry. The Turnpike Authority built a new storm sewer to nearby tidewater.

drainage work for the Turnpike Authority in the area, under a subcontract arrangement.

Neither the New Jersey Bell Telephone Co. nor the American Telephone & Telegraph Co., which owned ducts in the line, was able to determine any top limit to damages that might ensue from a complete break in the lines. No contractor could be expected to make good such losses as might result from accidents beyond his control—such as from a vehicle out of control plunging into the exposed duct bank during construction of the concrete encasement. Eventually, after several months of negotiation, a policy for $1,000,000 additional insurance was obtained by the contractor, the additional premium being paid by the Turnpike Authority. Fortunately, the work was handled with great care to prevent any movement of the ducts, and no accidents occurred.

• **Gas main**—In this same area, it was necessary to relocate a 16-in. gas main, which provided service to the industrial area at Kearny east of the Passaic River. This line also was located in an area affected by new fills, where considerable additional settlement was expected. Here a new line was located along the south side of Raymond Boulevard, in an old earth fill that would not be influenced to any degree by the new construction. Special taps were made into the live line, and bypasses installed so that the new line could be cut into service without interruption.

A similar procedure was used for relocating water lines at several locations where primary mains required continuous flow for five protection.

• **Sewers**—Trunk sewers were crossed in several places by the turnpike alignment. In each case, studies were made to determine if the addition of fill and traffic loads would necessitate concrete protection. At Port St. in Newark, a large deep interceptor sewer was planned, but had not yet been built. Construction of the portion beneath the turnpike roadways would be several times more costly after completion of the highway, so the city requested that portion to be constructed before pavement was placed. Consequently, plans furnished by the city were incorporated in construction contracts for turnpike grading and drainage, the city passing a resolution to provide reimbursement for those items involved in the sewer work. Original plans for the sewer called for location on the north side of Port St. Since this would have interfered with bridge piers carrying a new structure across the highway, the portion of the interceptor sewer was built on the south side. The increased cost of making the necessary connections, which would not have been required had the city's location been possible, was paid by the authority.

In the Ridgefield meadows, the turnpike crosses a new 60-in. sewer recently built by the Bergen County Sewer Authority, as a part of disposal facilities for several towns in the area. The system had not been placed in operation at the time of turnpike construction, permitting reconstruction of the section that would be affected by settlement due to weight of turnpike fills. This section was first severed from the rest of the line, sand drains were driven on either side at a reduced spacing to hasten the consolidation of the surrounding soft meadow and an excess of overburden was placed. After settlement was practically complete, a trench was excavated and the old pipe removed. Well points were used to dry up the muck, which had consolidated to such a stiff consistency as to permit nearly vertical cuts. Manholes were built at the ends of the severed portion of pipe, and new pipe placed between them to the proper line and grade of the sewer.

• **New storm sewer**—Provisions for carrying storm water from turnpike inlets were simple enough in most areas, where existing ditches and small streams were available. However in a highly developed area such as the thirteen blocks in Elizabeth where buildings were close together, special studies were required. Here the increased runoff from the paved surfaces of the turnpike would have required additional capacity in existing storm sewers, and the use of retention basins at frequent intervals. Maintenance of such joint facilities would have offered many problems. Instead, an entirely separate system was built, including a new outfall sewer to Arthur Kill, carrying all of the turnpike runoff independent of the city system.

At the crossing of Bergen Turnpike in Ridgefield Park, a special condition was met when the old roadway was relocated on an overpass structure, and the turnpike was carried across the

Smooth Starts

mean low operating costs

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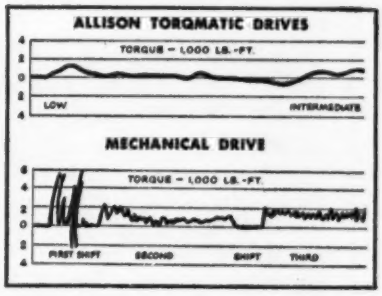
POWER-TRAIN SHOCK LOADS



Note the jagged line—shock loads—as the mechanical drive truck pulls away from the shovel and shifts from first to second gear. Compare the smooth line—no harmful shock loads—for the truck equipped with Allison TORQMATIC DRIVES.

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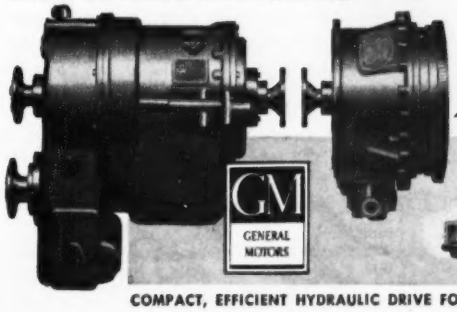
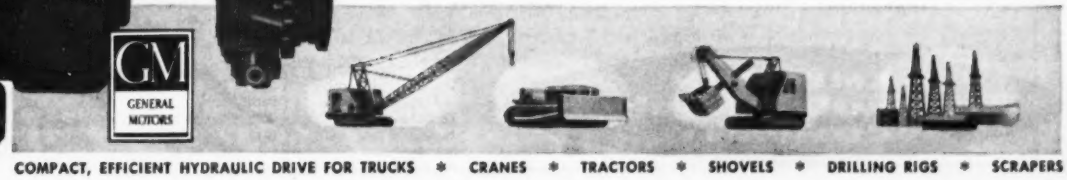


Allison TORQMATIC DRIVES



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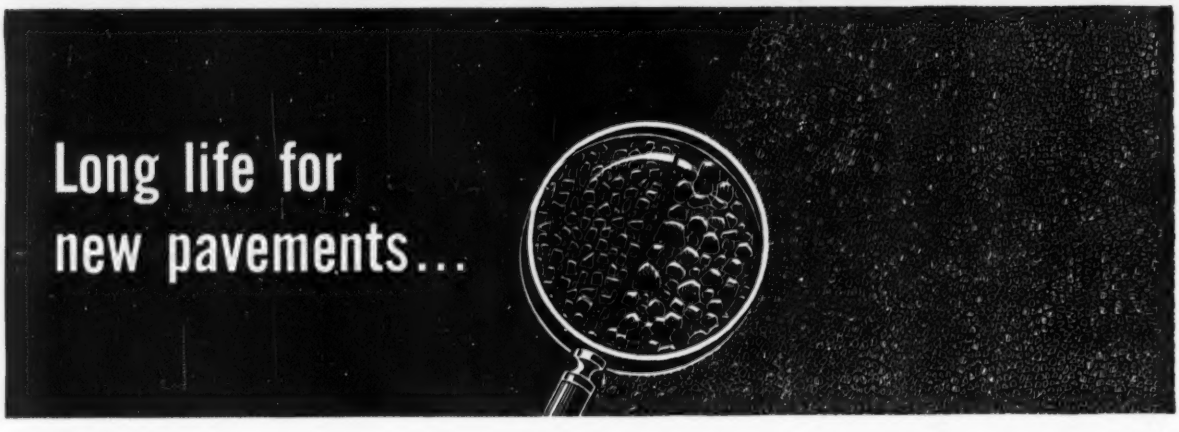

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a gas main and a 27-in. interceptor sewer. Rather than relocate these facilities, or support them against settlement from the weight of fill, a large culvert-type structure was built to carry the turnpike over the old road location. The two side walls and the center wall are carried on piles. The 70-ft cast-in-place concrete piles under the center wall, which is fairly close to the deep interceptor sewer, were protected by 16-in. pipes for the upper 12 ft, the pipe being cleaned out as it was driven in order to minimize displacement of surrounding soil and consequent disturbance of utility lines. Access to all of the utilities, for maintenance or repair, is gained from the open ends of the structure, which are barricaded to prevent unauthorized entry or nuisance conditions.

Initial construction of the turnpike was simultaneous with that of a 30-in. transcontinnental gas pipeline, bringing natural gas from the Southwest to the New York metropolitan area. It was inevitable that in selecting an alignment through the highly industrial areas of Elizabeth and Newark the two projects would be coincident in many places. However, by cooperative planning, the number of turnpike crossings was reduced to four in this area, two of them under structures. The other two were made in steel pipe-sleeves through low fills.

Although the pipeline parallels the turnpike for several miles, the distance between was kept as great as possible, to minimize hazard in the remote event of a break in the gas line.

Subsequently, after the turnpike construction was well advanced, and a second supplementary gas main of 16-in. size was proposed, the same principles and cooperative planning were applied.

• **Recreational facility**—In the turnpike structure across Overpeck Creek in Ridgefield Park, an opportunity was presented for combining highway construction with a municipal improvement. Original plans for the turnpike called for a long structure across both Overpeck Creek, a wide tidal estuary from the Hackensack River, and Bergen Turnpike, which borders the stream on the north bank, and crosses it just east of the turnpike. For some 25 years, officials in Bergen County had planned the development of this estuary as a fresh water lake, with a dam to be built across it to prevent the inflow of tidal water, and the upstream portion to be filled and landscaped for the benefit of the people of the surrounding communities. These officials immediately suggested that instead of a high-level bridge, the Turnpike Authority might construct a low-level causeway, or dam, without additional cost. A plan was then evolved for a low causeway structure, consisting of a series of piers to carry the turnpike across the creek in such fashion that the county might at some future date install gates on the upstream side. This would, in effect, fulfill the functions of a dam, providing for normal and flood flows of the natural stream.

• **Industrial utilities**—As it passes through the property of the Standard Oil Co. of New Jersey in Linden, the turnpike crosses many pipe lines carrying chemicals, salt water, etc., characteristic of refinery installations. The major structures of the plant are to the west of the turnpike, which follows the Central Railroad of New Jersey, but many tanks and other facilities are to the east, requiring ample provision for connecting lines, vehicle and rail access. Solutions of these problems included installation of three large culverts for the pipe lines, construction of a major viaduct across road and rail access, relocation of extensive ditches carrying condenser water, and the relocation of an entire railroad switchyard.

• **Railroad crossings**—The matter of railroad crossings in this northerly section of the turnpike was perhaps the most difficult problem encountered. The tracks of eight different railroads leading to terminals on the Hudson River or in New York are overpassed, some with several lines to be crossed. In all cases, there were serious problems of length of structure needed to allow the railroads room for future increases in the number of tracks. Mutually acceptable solutions of these questions sometimes took months of discussion. Often the Turnpike Authority was obliged to approve structures considerably longer and higher than necessary to clear existing tracks. In one case where the superhighway overpasses two railroads which now intersect at a grade crossing, clearance was provided beneath the turnpike structure for a future bridge to carry one railroad over the other.

In negotiating with municipalities, utilities and railroads, it is plain that highway planners must take into account not only the future highway needs of the community, but also the need for all other facilities. It is essential that the closest cooperation be maintained with those responsible for industrial and community development.

The engineering and construction supervision of the northern 18 miles of the turnpike, including relocation of public utilities, were performed by a joint venture comprised of the following firms: Frederic R. Harris, Inc., Edwards & Kelcey and O. J. Porter & Co.

Rome's large new stadium is opened

One of the world's largest stadiums, with a seating capacity of more than 81,000, has been opened recently in Rome, Italy, not far from the ancient Coliseum.

Built of reinforced concrete, and faced with travertine marble, the structure is 319 meters on its long axis, 186 meters at its widest, 17 meters high, and its floor is 4.50 meters below the ground level.

The 42 tiers of seats running a total length of 37 kilometers give the stadium a normal capacity of 81,000 seats. There are 61 entrances; the stadium can be emptied at the rate of 3,000 persons per minute.

Parking area surrounding the stadium is said to be able to handle more than 10,000 cars.

Studies show Pittsburgh how to drop sewage 90 ft vertically to tunnel interceptors

L. M. Laushey
Associate Professor of Civil Engineering
Carnegie Institute of Technology

PITTSBURGH'S PROPOSED $80-million sewage disposal works will include 35 miles of concrete-lined intercepting tunnels, generally running through rock and as much as 90 ft below the level of existing sewer outlets. Tunnels were chosen by the designers—the Allegheny County Sanitary Authority—as the most practicable method of interception along the heavily industrialized banks of Pittsburgh's three rivers. Important in this rather daring type of interception was the tricky design of 165 shafts in which sewage will drop vertically from the existing sewers to the deep underground tunnels.

To provide basic information on flow in such vertical pipes, and specific data for design of the 90-ft long shafts, model studies were conducted in the civil engineering laboratories of Carnegie Institute of Technology. The prime object of the program of studies was a comparison of various practical types of entrance at the top of a shaft.

Despite some advantages of a morning-glory entrance, it would be difficult and costly to shape 165 different shafts for the wide range of flows expected. And compared with shaft spillways frequently built behind dams, the capacities required of these sewage shafts are small, the largest storm flow being only 70 cfs. As many as 80 outlets will never discharge more than 1 cfs each. Shaft diameters must be large, though—at least 8 in.—to prevent clogging by debris.

Fig. 1 shows three of the simplest types of entrance to a shaft. Each has its own criteria for occurrence, and each produces distinctive flow characteristics.

• **Flooded entrance**—This type, shown by Fig. 1a, has the advantages of positive hydrostatic pressure throughout the length of the shaft, absence of entrained air, and velocity not dependent on distance of fall. Depths in the inlet tank are dependent on both the discharge and the pressure in the tunnel below. This condition is the common problems of a pipeline under pressure throughout its length. Although it would be the most satisfactory type of entrance, only rarely would sewage flows be large enough to make flooded flow possible.

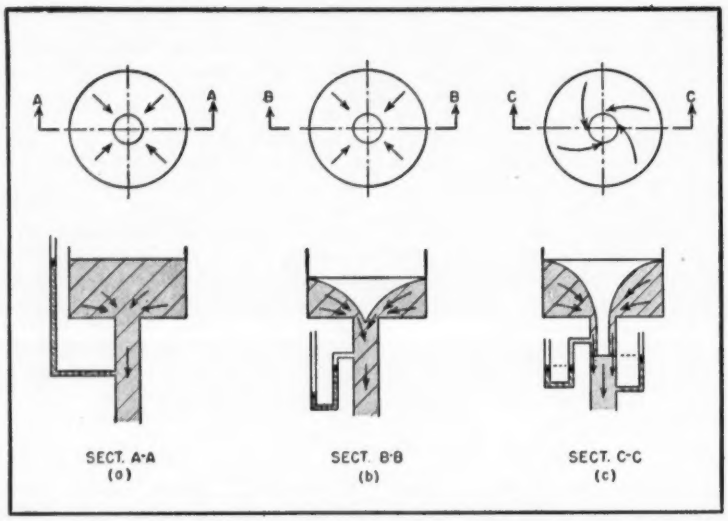


Fig. 1. INLET TO VERTICAL SHAFT is crux of the problem. These three variations of inlet flow were studied: flooded, radial and spiral entrance. The vortex works best.

• **Radial entrance**—Fig. 1b shows a radial approach to an unflooded shaft. The water surface is drawn down over the center of the opening. Negative pressures generally occur at the top of the shaft, and cavitation and air entrainment can be expected because of the suction and the high velocity.

• **Spiral (vortex) entrance**—Fig. 1c is characteristic of a spiral approach, with an air hole down the center of the pipe approximately to the point where the tunnel hydraulic grade line intersects the shaft. Throughout the depth of the hole, the water hugs the wall and fills only the outer portion of the pipe in its downward spiral against the inside of the shaft. As long as the shaft is not flooded, the discharge is free, and the depth in the inlet tank is independent of pressure down in the tunnel. Since the central air core is at atmospheric pressure, there is no suction, and air is entrained only by the turbulence and velocity of the water surface.

• **Model studies**—Radial and spiral flow were observed in a model with a fall of 30 ft in a vertical 6-in. lucite pipe which extended through three stories of the laboratory building. The tunnel interceptor was modeled by another 30-ft length of horizontal 6-in. lucite pipe. Air vents were installed to release entrained air from the interceptor, and the quantities of air were measured by a calibrated orifice meter.

The simplified sketch of the model of one shaft and a portion of the tunnel (Fig. 2) shows pressures measured on manometers when the flow in the shaft was a spiral. The pressure surcharge was varied by a valve at the outlet to represent a range of depths in an excavated wet well into which the tunnels will discharge at the planned treatment plant.

Normally, to reduce pumping, this well will be filled partly, but not high enough to flood the shafts completely. At times, the well will be pumped to a low level to flush the system; then the sewage will fall freely to the bottom of the shafts and flow in the tunnel as in an open channel.

With spiral flow, pressures in the shaft above each hydraulic grade line were always atmospheric, or slightly positive. Friction losses were high enough to prevent the velocity from increasing much as the water spiralled down against the inside wall of the pipe to the level where the pipe was full and under pressure. At this point, additional large losses of energy occurred in turbulence as the velocity of the spiral jet was reduced to the average velocity in the full pipe.

As expected, measurements on the model showed negative pressures and considerable amounts of entrained air with a radial entrance. Guide vanes were necessary to maintain steady radial flow in the inlet tanks. The designers hoped to eliminate guide vanes to reduce fouling by accumulation of debris. But without them

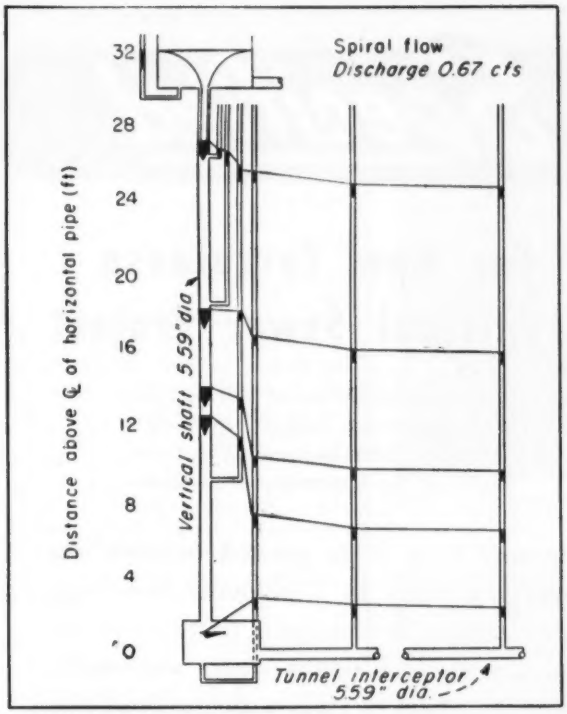


Fig. 2. SKETCH OF MODEL shows manometer pressure measurements at points in shaft and tunnel for spiral flow of 0.67 cfs.

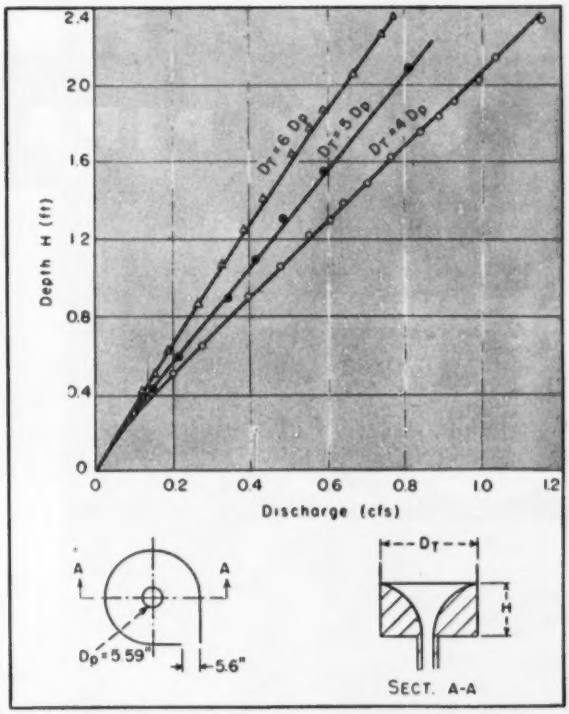


Fig. 3. DISCHARGE CURVES show relationship to depth in inlet tank for spiral flow into an unflooded shaft.

the water would break over periodically into a vortex. During these changes, large slugs of air were breathed in with much noise in the latter stage of the alternate breaking and formation of the suction.

Measurements during spiral flow showed air being drawn into the shaft, but at a lower rate and more steadily than with a radial entrance at the same discharge. And because there was no suction in the top of the shaft, a greater depth head was needed in the inlet tank. This was advantageous in reducing the velocity and stilling the flow at the entrance to the inlet tank.

• **Advantages of spiral flow**—Spiral flow has definite advantages, especially for low rates of flow. The strong vortex motion eases the water down smoothly against the sides of the pipe with considerable dissipation of energy. No negative pressures or dangers of cavitation occur because of the continuous air column down the center of the pipe. And if the inlet tank is designed to prevent waves and riffles on the water surfaces, smaller quantities of air are entrained than if water enters into an unflooded shaft radially.

The Sanitary Authority was convinced that spiral flow best met its requirements for the control of entrained air, cavitation, and scour and impact at the bottom of the shafts—especially during the critical periods of operation when there will be no pressure in the tunnel or shafts. Laboratory tests were then made to provide more specific information which was used in designing the spiral flow shafts.

• **Design info**—Results of the tests show that to produce a smooth, strong vortex, the inlet tanks should be circular with the water entering tangentially through a full-depth slot. The diameter of the tank should be from 4 to 6 times the diameter of the shaft—the larger tanks being preferable hydraulically. The width of the inlet slot should be not less than three-quarters, but not more than the diameter, of the shaft. For these dimensions, and when the depths in the tank were not over five times the diameter of the shaft, the vortex was exceptionally stable during both steady and unsteady flows.

Fig. 4 shows inlet tank and vortex which started the spiral motion. The wave breaking over at the eye of the vortex in the smaller tank (left) entrained more air than did the smoother water surface which was provided by the larger tank.

Depths of the vortex in these inlet tanks for various free discharges are shown by Fig. 3. The discharge was about proportional to the depth. Experiments showed that for a given discharge the depth would be less when using either a tank of smaller diameter or an inlet slot of greater width.

(*Continued on page 41*)

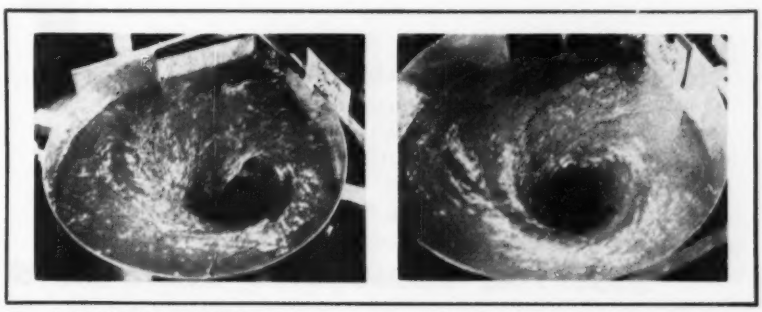
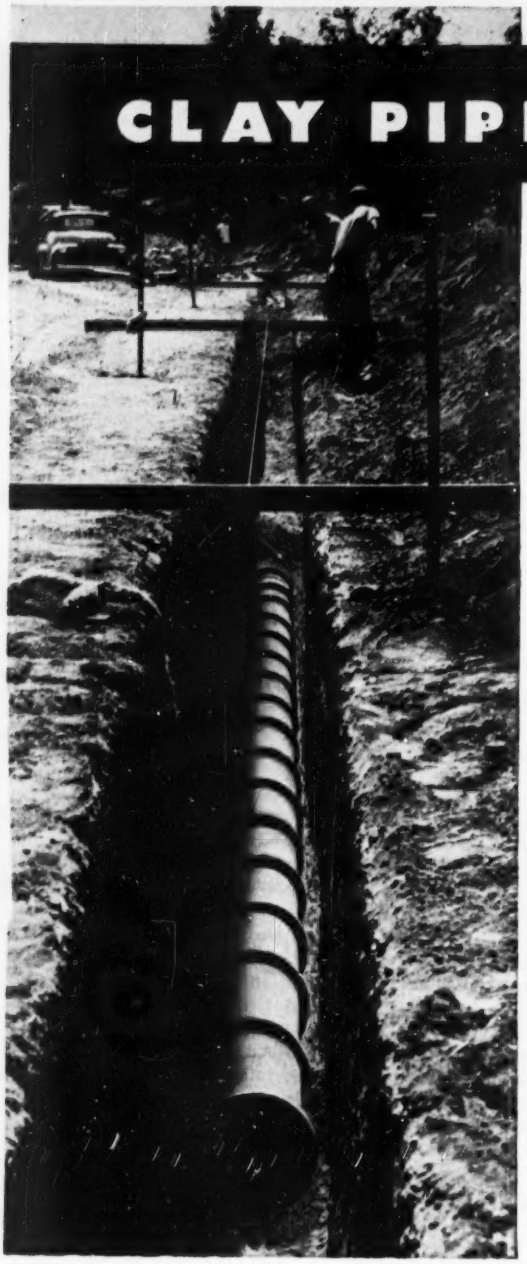


Fig. 4. ROUGH VORTEX at left was smoothed (right) by enlarging inlet tank.



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More than 44,000 feet of Vitrified Clay Pipe are being installed to serve a growing residential area in Tuscaloosa, home of the University of Alabama.

Because Clay Pipe proved outstanding over the years in Tuscaloosa sewerage installations, it was again first choice for the current $170,000 sewer expansion program. City engineers throughout the country rely on the dependability and proven performance of Vitrified Clay Pipe for sanitary sewers. It's guaranteed for 50 years!

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Froude's Law can be used to extend these results to similar inlets of other sizes.

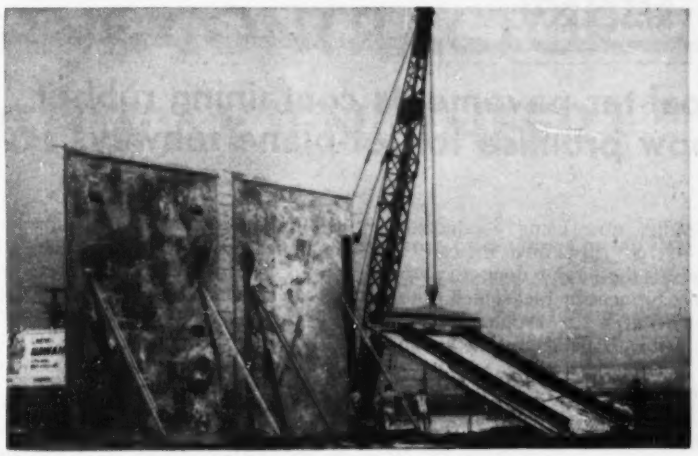
Measurements with a Pitot tube showed that the velocity increased toward the center of the tank in agreement with the theory of a free vortex. Since the depth was nearly proportional to the discharge, the velocity at any one point in the tank was almost the same for all discharges. More flow would occur at a greater depth, but at the same velocity. An advantage here is that a design can be made to prevent settling of grit at all flows, during dry weather periods as well as during storms. A disadvantage is that scour could be serious in regions of high velocity, since velocity would be just as high during the long periods of dry weather flow as during the brief periods of storm flow. Calculations showed that the maximum tangential velocities in the prototypes would be high, but they would be unavoidable.

• **Diversion structures**—A model study was also made of the diversion structure which will connect the end of an intercepted sewer with the top of a shaft. These structures at the river banks will divert all dry weather flow under a regulating gate from the sewers to the inlet tank and shaft leading to the tunnel. They will divert up to 250% of dry weather flow during storms, and the remainder of the storm flow will be discharged directly into the rivers through a tide gate which will open when the head builds up in the sewer.

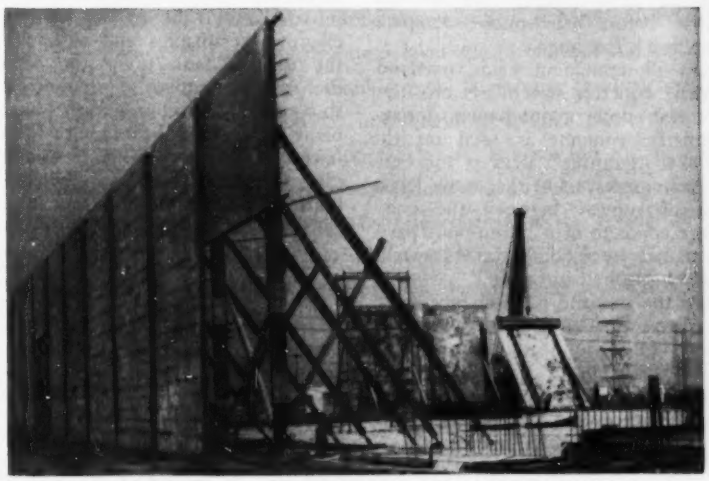
In the model, the regulating gate was represented simply by an orifice slot, and the gate was omitted. The original model of the vortex inlet tank was modified slightly to provide a curved transition approach from the stilling area, although tests with both models gave similar results. All of the model studies were made with clear water only, not with any sewage which contained street wash or organic matter.

The problems studied with these models were first presented to the Carnegie Tech Hydraulic Laboratory by John F. Laboon, Chairman and Chief Engineer of the Allegheny County Sanitary Authority. The research work was done under contract with the Allegheny County Sanitary Authority, with the author acting as project supervisor. Students worked on the project. F. T. Mavis, head of the department of civil engineering, had general supervision of the project and took part in writing the final report to the Sanitary Authority.

This article is based on information presented in the final report.



GIANT SIZE concrete wall panels were erected by tilt-up and . . .



BRACED SECURELY in a vertical position by adjustable timber struts in . . .

Fast-moving warehouse erection

IT TOOK ONLY 11 DAYS, using the versatile tilt-up method, to erect the concrete exterior walls of a 280x200-ft warehouse at the United Air Lines maintenance base in San Francisco. Although the wall panels aren't the largest or heaviest ever erected by this method, they are in the "giant size" class. Each of the 48 panels weighs 19 tons, and measures 28x20 ft.

Contractors Barrett & Hilp, of San Francisco, poured the 6-in. thick reinforced concrete panels in forms on the previously poured warehouse floor. They were crane-hoisted into vertical position and braced with timber struts equipped with adjustable anchorages.

The special lifting yoke made a four-point pick-up at the top of each panel, by bolts screwed into nuts welded to the reinforcing steel mat. Two double-channel strongbacks bolted to the top, bottom and center of the panels minimized bending stresses in the concrete panels as they were being put in place.

Interior framing of the 56,000 sq ft building is structural steel. The roof is lightweight gypsum-fiber concrete, poured-in-place. H. J. Brunnier, structural engineer, San Francisco, was the designer, and Wm. E. Ottenstein, assistant manager of construction for UAL, was in charge of the job. Wall-erection was started last July 20 and completed Aug. 1.

Coal-tar pavements containing rubber show promise for jet-plane runways

Studies now being conducted by the U. S. Air Force indicate that most of the injury done to bituminous pavement by fuel spilled from jet airplanes can be avoided by using coal tar with which synthetic rubber has been blended as a binder for such pavements.

Coal tars are not soluble in the petroleum distillates used as fuel for jet engines, as are asphalt oils. But tars have a narrow range of desirable ductibility; they become too soft at summer temperatures and become brittle before atmospheric temperatures reach freezing.

On all permanent fields, portland-cement concrete pavements are used for test and maintenance aprons. Similarly, concrete is used on the 1,000-ft "gunning" areas at the ends of each runway. On the much larger area of runway between the ends, either concrete or a bituminous pavement may be used, but costs usually favor the asphalt surfacing.

On the test and maintenance areas, jet planes may be operated as long as from 7 to 21 minutes at full throttle. When such aprons are built of concrete, spillage of jet-engine fuel does no harm except to joint fillers having an asphalt base.

Jet fuels are petroleum distillates similar to kerosene. They volatilize slowly, and so when spilled on concrete pavements in any considerable quantity they soften and dissolve joint fillers of the asphalt type. As a result, tar-base and synthetic-rubber-base fillers have been developed.

Softened joint fillers may be blown out of joints in concrete pavements by the blast from jet engines under test.

Measurements of temperatures of concrete pavements in the "gunning" areas show that slab temperatures may rise to 385 deg F when jet engines operate at 100 percent power as long as 21 minutes. Even concrete begins to spall under such treatment.

Asphalt pavements, on the other hand, begin to show damage from heat if the application of full throttle before takeoff goes much beyond the normal 2 to 10-second interval.

When a plane is operating at the 50-to-60 percent of power used normally in taking a plane from the apron to a runway, the heat has no effect on a bituminous pavement as now built to specifications developed by the Corps of Engineers. This pavement is a dense-graded asphalt designed for tire pressures in the range of 200 to 250 psi.

Because of the success with tar and synthetic rubber mixes for fillers in the joints of concrete pavements, that field was explored further in studies to develop a surfacing for bituminous pavements more resistant to spillage of jet fuel. For some of the test pavements the blends of tar and synthetic rubber were made at the plants of chemical companies and shipped to the job in tank cars. For others, the synthetic-rubber compound was shipped to the contractors' hot-mix plant to be blended there with the tar (either an RT-11 or RT-12). In either case, the amount of rubber has to be limited to avoid gumming up pumps, valves and piping in the hot-mix plant.

Surface courses built with these cementing mixtures appear to repel spilled fuel completely and to resist blast heat for a period of several minutes at partial power and for shorter periods at full throttle. Surface areas heated in this way do not show tire prints of wheels of moving planes if the wheels are not locked. And the surface does not blow away noticeably when later subjected to protracted blasts from a fixed aircraft.

Three elevators make four in Columbus hospital

The newly-completed wing of the Mount Carmel Hospital at Columbus, Ohio, uses front and back doors on the middle car of its three-car-bank of elevators, serving the lobby on one side and the service hall on the other. The scheme works so that during visiting hours there are two cars serving the lobby, the back door of the middle of three cars being closed to service hall use. When visiting hours are over the front door on this middle car is closed to lobby use, and it serves as the second of the service hall cars.

This is not the beginning of a canal-digging operation, as it might appear. When the hillside is cut down to grade level, this will become the northwest curve of a high-speed oval test track at the Chrysler Engineering Proving Grounds, 60 miles west of Detroit (ENR July 10, p. 42).

Concrete surfacing of this 4.7-mi track and several other tracks on the 3,800-acre proving grounds will begin next spring. By mid-summer, the corporation plans to have Chrysler, DeSoto, Plymouth and Dodge cars, as well as U. S. Army tanks and Dodge military and civilian trucks, undergoing tests at the proving grounds, the largest of its kind in the world.

Besides the oval track, which will permit driving at speeds up to 140 m.p.h. without side thrust, a 10.5-mi endurance road will encircle the grounds. Other facilities include two straightaway test strips, a water trough, mud and sand pits, and a skid pad. Hills on the grounds provide grades up to 32%.

This is the largest private earth-moving project ever undertaken in Michigan. About 2,000,000 cu yd of earth will have been moved when the project is completed.

TO THE CONTRACTOR *and* HIGHWAY ENGINEER!

FOR years highway engineers have been working toward the elimination of road forms, and at the same time building a road that was known to be definitely level on both sides of the longitudinal joints.

Accuracy could be obtained at the shoulders with a line. The thickness of the course could be ascertained with a gauge, but a line at the center of the road for establishing an absolute level was obviously impractical. Up to now, even with the most modern equipment, to arrive at any approach to accuracy in maintaining the level of a black top course over its full width was no more than a reasonably good guess. Matching devices can assure that one course will match the other course at the joint. In other words, both parallel courses will be the same depth where the courses abut, but the course at any given point may have a roll in it.

The shoulder remains true because of the line—The longitudinal joint can be tight—But, the center of the road is veiled in mystery insofar as its level qualities are concerned. There has been no means to correct the roll and dips that won't show under a straight edge.

Now, for the first time in the history of paving this situation can be corrected and it is possible for the contractor and Highway Department Engineers to know exactly what the condition of the road surface is insofar as its level characteristics and slope are concerned.

The direct-lift, one-piece-unit Cutter Bar Screed of the Adnun Black Top Paver has made possible the application of a Fluid Level to black top paving. The Fluid Level can be used either with a line for a primary setting along the edge of the road or without it. A simple, accurate device, it serves the purpose of leveling up a road course just as a carpenter uses a level to level up a structure. It permits correcting for any desired slope at any station. It permits holding an absolutely level grade without modifying the desired crown. It permits leveling up old shoulder and blending it into the crown but, most important of all, it takes out the dips that won't show under the straight edge and it gives you absolute control of the laying of the *center of the road.* With the Adnun Fluid Level you both match the joint and *take out all the undulations on each side of the joint!* Your road is as level and true at the center as it is at the shoulder.

The Adnun Fluid Level should be standard equipment on every black top spreader. It means better, smooth, longer life roads for the State and County. It means less waste of material, smooth running jobs and better work acceptance for the contractor.

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SITE of Boston development in the Back Bay area of the city is now a railroad yard. The development is expected to cost about $75 million and will include a convention hall to be built by the city.

TENTATIVE MODEL of possible development of the 28-acre Back Bay tract. Viewing the model, are, left to right, Francis X. Ahern, Edmond J. Burke, (rear) Mayor John B. Hynes and Charles H. Morton.

Syndicate buys rail yard to build center

Roger L. Stevens, head of a syndicate that recently purchased the Empire State Building in New York City, is the leader of a real estate group that has purchased the 28-acre Boston & Albany Railroad yards in Boston's Back Bay for $4.5 million. The yards are to be the site for a proposed $75-million development similar in scope and function to New York's famed Rockefeller Center.

Mayor Hynes of Boston announced that to encourage the development, the city has agreed to fix the tax assessment on the property at the amount of the $4.5-million sale price. The railroad yards are now assessed for $8 million.

• **Railroad yards**—Stevens pointed out that the railroad yards cover more than twice the land area of New York's Rockefeller Center. The Back Bay property includes more than 1,200,000 sq ft of land.

The property is bounded on the north by Boylston Street, on the east by Exeter Street, on the south by Huntington Avenue and on the west by Dalton and Belvedere Streets.

Subways run beneath Boylston Street and Huntington Avenue.

• **Development**—Stevens has not yet decided on a name for the development. The name "Back Bay Center" has been suggested to him. Development plans will be tentative for some time, but construction should be under way in about two years. It will take the railroad about six months to move its tracks to a new location upon completion of plans.

Stevens said that he visualizes a development consisting of a convention hall; a hotel; at least two office buildings; a professional building for doctors, surgeons and dentists; a theater; an underground garage; and stores and shops.

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SOIL ON THIS JOB was a coarse coquina shell—the very material to be manufactured into the cement. Thus, the site was a natural from the builder's angle. Not so from the pre-drainage angle.

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Mayor Hynes announced that the city would build the convention hall on the site and said such a project would have been undertaken even if the proposed real estate development had not materialized. The mayor expressed his belief that the convention hall and new hotel would bring additional convention business to the city.

• **Syndicate head**—Stevens, 42, was educated at Choate School and the University of Michigan. Besides his prominence in the real estate field, he is well known in New York as a theatrical producer.

He attracted nation-wide attention as head of the Glastet Corporation, which purchased the Empire State Building, world's tallest skyscraper, for $51.5 million—highest price ever paid for a single building.

The name Glastet was formed from Stevens, Alfred R. Glancy Jr., of Detroit, and Ben Tobin, Florida hotel and real estate owner. It took seven months to conclude the transaction and required the services of more than 60 persons.

The syndicate has extensive real estate holdings. These include such properties as the 2,200-room Taft Hotel in New York, The Williamson Building in Cleveland, the Neil House in Columbus, Ohio, and the new $10-million Evergreen Park Shopping Center in Chicago, which opened last year.

Stevens also is a director of the City Investment Company.

Dallas looks to new water sources as present supply is termed critical

Officials urged to action in tapping two more sources to augment present intake from depleted supply

Dallas, Tex., received a sobering report of near-depletion on its water supply situation this month. City officials immediately started work on emergency measures.

Lockwood and Andrews, Houston consulting engineers (ENR Jan. 8, p. 53), warned that Lake Dallas and Grapevine Lake—the city's major water sources—could be depleted by June 15 if the worst drought on record were repeated.

Furthermore, warned Mason G. Lockwood, head of the firm, Lake Dallas and Grapevine reservoir might be even depleted under less drastic conditions, by the end of the coming summer.

Lockwood urged that the city quickly avail itself of two more surface sources: The West Fork of the Trinity River (which flows through the city) and the Red River, 75 mi to the north.

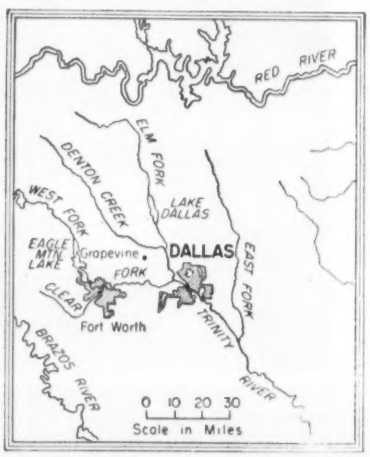
He thus endorsed the recommendation made last fall by T. Carr Forrest, a Dallas consulting engineer, that the West Fork be used (ENR Nov. 6, '52, p. 51). The city council had scrapped Forrest's recommendation after discussion of possible pollution of West Fork water, which carries sewage from Fort Worth and several other cities.

The city council accepted Lockwood's suggestions.

Lockwood forecast that the West Fork water would be available by June 15 at a cost of $233,000 and the Red River tap would be completed by Aug. 16 at a cost of $678,000. Together, they will supply 65 to 70 mgd to the thirsty city. Dallas requires 48 to 64 mgd for the lowest demand month, and 68 to 121 mgd at peak demand. (This wide range is due to computations based on periods of normal use, periods with slightly restricted use and periods of rigid controls.)

• **The situation**—As of Feb. 1, the report showed, only 34,000 acre-ft of water remained in Lake Dallas, Grapevine Reservoir and White Rock Lake, which has been pressed into emergency use. In addition, ground-water supplies were furnishing 7 mgd.

Normal yearly water requirements



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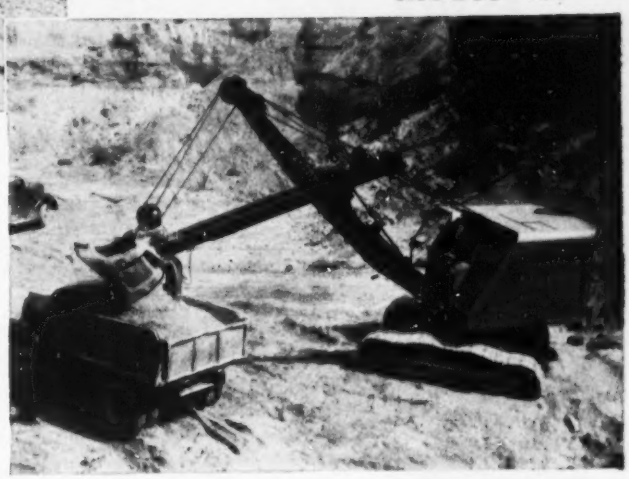

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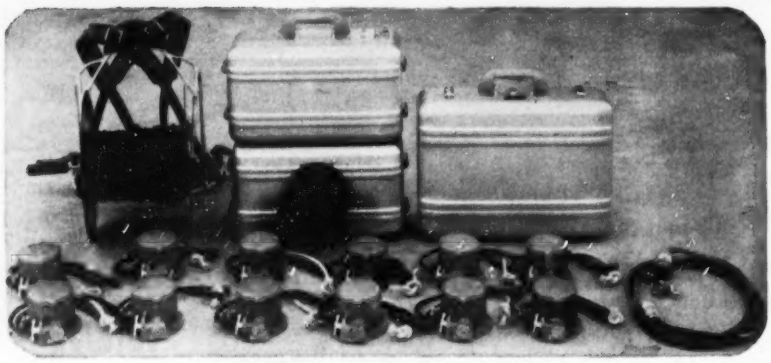

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of Dallas are about 85,000 acre-ft, said Lockwood, and these needs are jumping 5,000 acre-ft annually. A reservoir inflow of 125,000 to 150,000 acre-ft yearly would be required to meet this normal use demand.

Historically, the report pointed out, about 204,500 acre-ft could be expected to flow into Lake Dallas and Grapevine Reservoir during the months of April, May and June — about 54% of the average annual inflow.

With these figures in mind, Lockwood said: "Lake Dallas definitely could be depleted some time this summer or later, regardless of restrictions on use, unless the supply is bolstered".

He said Dallas must prepare immediately, even though a wet cycle might leave the city with a partially completed facility of little immediate value.

• **Action**—The city council has engaged Lockwood and Andrews to design the West Fork project, Forrest & Cotton, of Dallas, to handle the Red River tap.

The West Fork project will require a diversion dam located on the Trinity River, 400 ft southeast of the junction of the West and Elm forks of the Trinity.

The diversion dam will send water through the Elm Fork of the Trinity, where the river channel would provide 530 acre-ft of storage space. A low-lift pump will be installed 2.7 mi above the diversion dam, and a small intake channel will be excavated from the Elm Fork to the pump and chlorination station. A 369-acre detention reservoir then will receive the water and provide a detention period of 33 to 40 days for a flow of 25 mgd. This daily water flow will go through a 600-ft, 42-in. concrete pipe into the city's Bachman treatment plant.

The Red River plan, which will add about 45 mgd to the city's supply, contemplates pumping water directly from the river north of Gainesville. A small channel-diversion dam and pumping station at this point could lift water 234 ft over the watershed divide between the Red and Trinity Rivers through a 1.55-mi, 48-in. concrete pipe, emptying into Pecan Creek at a point 68 mi upstream from the Bachman plant. Water would flow along Pecan Creek into the Elm Fork and then to the Bachman plant.

• **Quality check** – Concurrently with the Lockwood and Andrews engineering survey, E. W. Steel, sanitary engineering professor at the University

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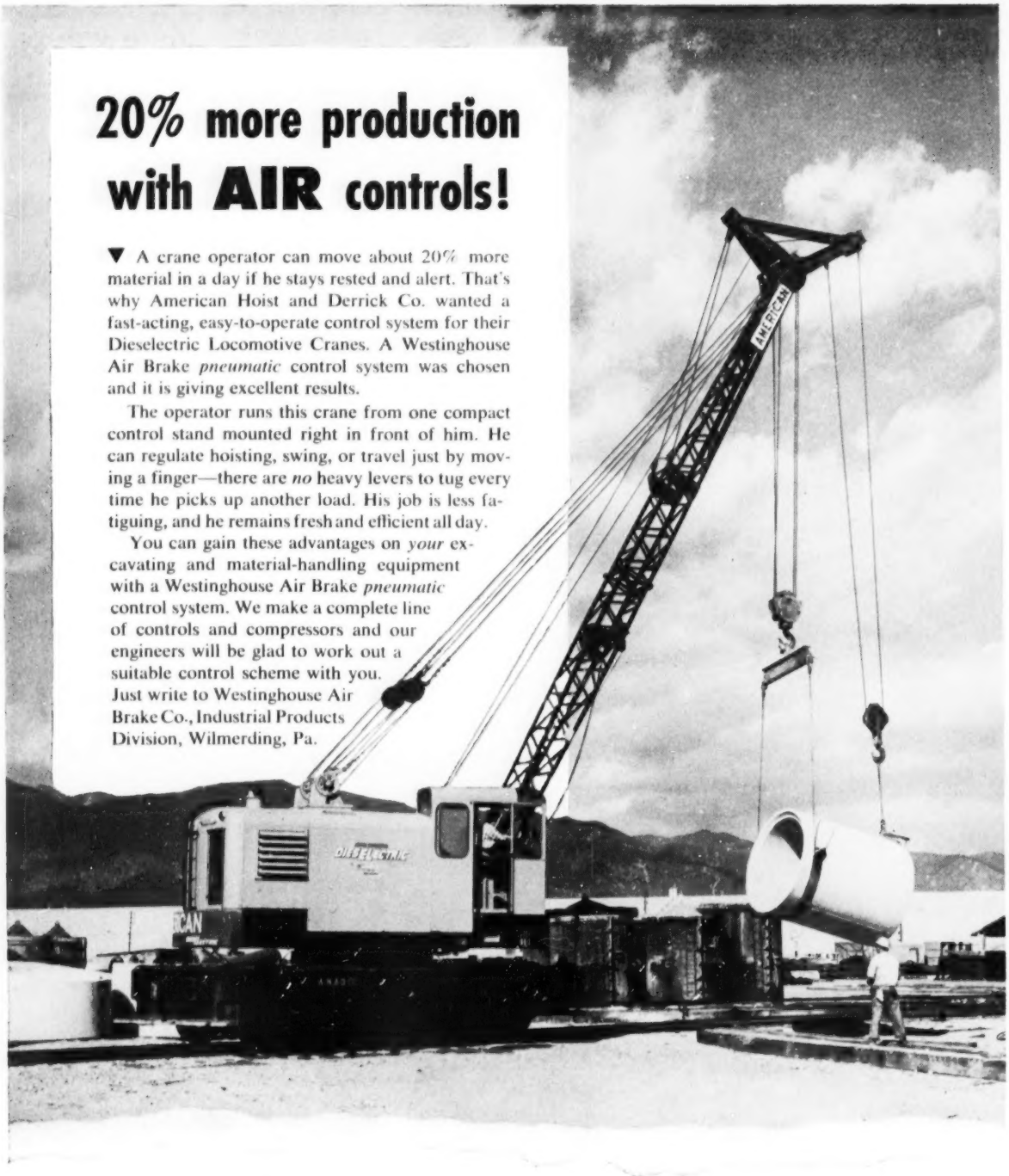

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of Texas, examined the condition of the water.

He found that West Fork water, after 40 days detention and proper chemical treatment, would not be objectionable in any way.

He warned, however, that the Red River water is highly mineralized and includes large amounts of sulfates and chlorides that the existing treatment plant will be unable to remove.

Steel pointed out that the dual plan of tapping both the Red River and the West Fork will enable Dallas water officials to mix the two flows, thus reducing the Red River mineralization about one third and producing a water with a hardness of 540 ppm.

The Red River water poses no bacteriological problem Steel reported.

• **Groundwater**—Still another survey included in the Lockwood & Andrews report was a study of Dallas groundwater conditions by William F. Guyton and W. N. White, hydrologists, of Austin, Tex.

Guyton warned that if the city went ahead with its plan to draw 25 mgd from groundwater supplies, the subsurface reserves would drop considerably in a year.

He noted that practically all wells would have to be deepened as a result and, most important, water supplies for small communities in the Greater Dallas area would be in serious jeopardy.

As a result of Guyton's findings, Lockwood advised that groundwater use be confined to 22.5 mgd withdrawal for periods of short duration.

Both the Red River and West Fork plans present legal difficulties that Dallas City Attorney Henry Kucera announced he would tackle immediately. Tapping of the Red River will require approval by the states of Oklahoma and Texas. The Texas State Board of Water Engineers must give approval to the West Fork plan, and property owners in land to be taken for the project must be dealt with in advance.

District awaits study

Mayor Corcoran of Syracuse, N. Y., has delegated four department heads to make detailed studies of sewage operations, costs, and legislative policies affecting disposal before he allows the County Public Works Commission to go ahead with plans for incorporating Syracuse into a metropolitan sewage district. The city is now operating on Onondaga County sewage plants.

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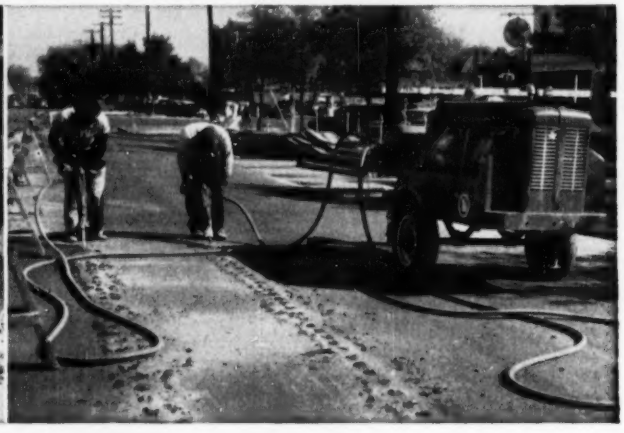

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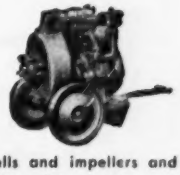

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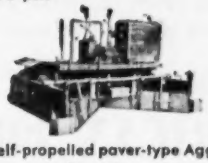

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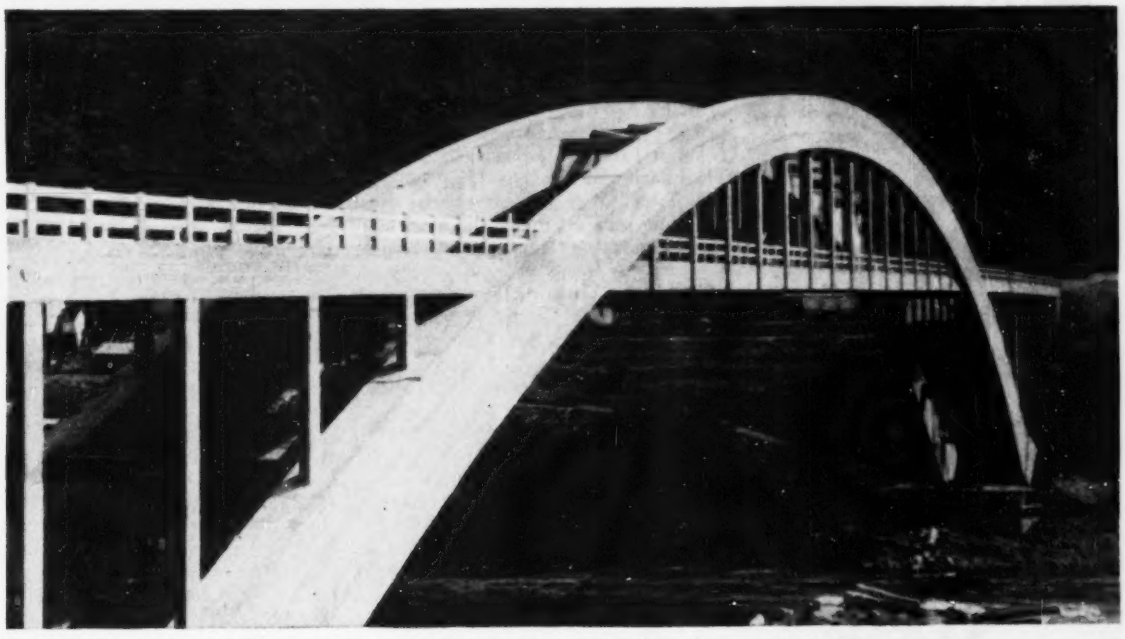


CONCRETE ARCH BRIDGE spans 612 ft over the Antas River in Brazil, becomes world's third longest arch.

Arch bridge sets Western Hemisphere record

Antonio Froes, Jr.
Assistant Engineer
Division of design and planning
Department of Roads and Streets
Porto Alegre, Rio Grande do Sul, Brazil

A concrete arch bridge with the longest span in the Western Hemisphere has been erected in Brazil. Built to carry highway traffic over the Antas River, in the state of Rio Grande do Sul, it has a main span of 612 ft.

Only two other arch bridges are longer—the Sando in Sweden, 870 ft, and the Esla in Spain, 692 ft. The Plougastel arches in France have spans of 612 ft between centers of supports, but they were designed as fixed arches with spans of 590 ft (ENR Oct. 31, 1929, p. 691).

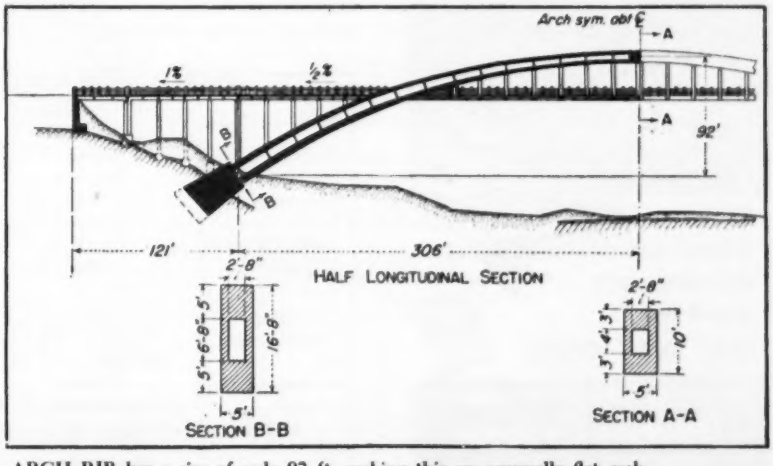
The new bridge is also noteworthy because of the flatness of the arch (see table).

• **Deep valley**—The bridge was built at the bottom of a deep valley on Route RS6. This highway extends from Porto Alegre, capital of the state, to a great plateau to the northwest, a rich area producing grapes, wines, grains and timber.

The plateau, which has an average height along its eastern border of 3,300 ft, slopes gradually to the southwest and is cut by deep valleys where swift rivers flow. It is the southern border of the great flow of basaltic magma that covers a large area of south Brazil. Its deep valleys are the shrinkage cracks that developed during the cooling of the rock and later were enlarged by erosion and other geological forces. In one of the many such valleys, the Antas River bridge was erected.

• **Loads and stresses**—Built entirely of reinforced concrete, the structure has a total length of 913 ft. It carries a 29.5-ft wide deck, ample for two lanes of highway traffic.

In addition to dead load, it was designed for a live load consisting of a 27-ton steam roller or a 17.5-ton steam



ARCH RIB has a rise of only 92 ft, making this an unusually flat arch.

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roller plus a 92-psf uniformly distributed load. Also taken into account in the design was a transverse wind load of 31 psf, a plus or minus 9F temperature change, and shrinkage of the concrete equivalent to a temperature drop of 27 F.

The mean working stress in the arch is about 1,050 psi for dead load only. The maximum stress is 1,550 psi in the outer fibers at the crown and springing sections under the most adverse loading combination.

• **Slender construction**—Approach spans are very slender, continuous frames. They were built of 3,700-psi concrete.

The main span consists of two slender, parallel arch ribs, which have a rise of 92 ft. They carry the deck about 30 ft below the crown.

The ribs are fixed at the abutments. Large masses of reinforced concrete, these supports transmit the 3,000-ton inclined reaction of each rib through a layer of cracked surface rock to sound rock lower down.

The ribs are hollow rectangles, 5 ft wide and 10 ft deep at the crown, nearly 17 ft deep at the springing line. Concrete for them was made with 7 bags of cement per cubic yard, river sand passing a No. 4 sieve and crushed basalt graded from 3 to ¾ in. The mix was placed very dry with the aid of intense vibration. Strength averaged 5,030 psi in 28 days.

• **Steel centering**—Forms for the ribs were supported on steel falsework, because the swiftness and high tides of the Antas River precluded the use of standard timber centering. The steel falsework will be re-used for the construction of other river crossings in Rio Grande do Sul.

Because of the position of the deck, the arch ribs were built first and decentered before construction of the deck. Decentering was carried out in several steps. In each step, an eccentrically applied prestress at the crowns was increased to raise the ribs slightly, while the falsework was lowered a short distance after each application of prestress. Five 500-ton jacks applied a force of about 1,800 tons ultimately, with an eccentricity of about 5 in., at each crown.

The bridge, which cost $950,000 and took 2½ years to build, was designed by Antonio Alves de Noronha, professor of reinforced concrete and structural engineering at the National School of Engineering of the University of Brazil, Rio de Janeiro. Alcedo Cavalcanti was resident engineer for the designer.

Christiani-Nielsen, Engineers and Contractors, was the contractor, with Aag Vest in charge. Research and testing of materials was carried out by Technological Institute of Rio Grande do Sul. For the state, construction was under the supervision of de Estudos e Projetos of the Departmento Autonomo de Estradas de Rodagem, with Luis C. A. Reis as resident engineer.

Develop electric heating for cold-weather pours

Japanese engineer Chuzo Itakura of the University of Hokkaido has worked out a process for the electrical heating of concrete pours in cold weather. His experiments and field studies since 1947 have been so successful that the electrically heated curing process is now included in specifications for winter concreting in Northern Japan.

His process is applicable to both plain and reinforced structures. Curing is said to be faster, but there is danger of weakening bond in reinforced concrete when the temperature

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Bridge	Country	Span—L Feet	Rise—h Feet	L/h	$L^2/8h$
Sando	Sweden	870	131	6.6	718
Moselle	Germany	352	27	13.2	580
Traneberg	Sweden	593	86	6.9	512
Rio das Antas	Brazil	612	92	6.7	505
La Roche Guyon	France	530	76	7.0	460
Plougastel	France	590	110	5.4	396
Elorn	France	567	124	4.7	322
Castelmoron	France	470	89	5.3	311
Teufelstal	Germany	452	86	5.3	298
Esla	Spain	692	206	3.4	288
La Guaira-Caracas	Venezuela	498	108	4.6	287
Lorraine	Switzerland	493	108	4.6	282

* As measured by the ratio of the square of the span to eight times the rise.

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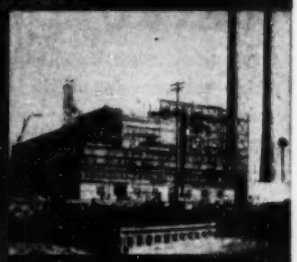

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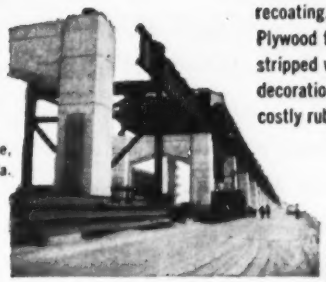

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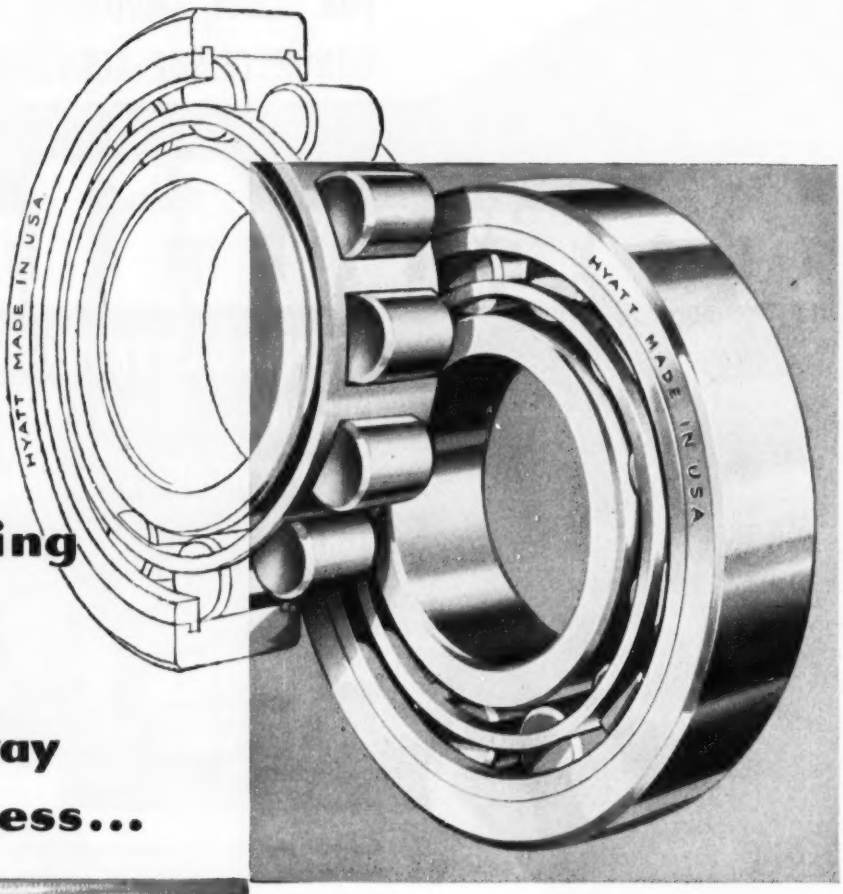
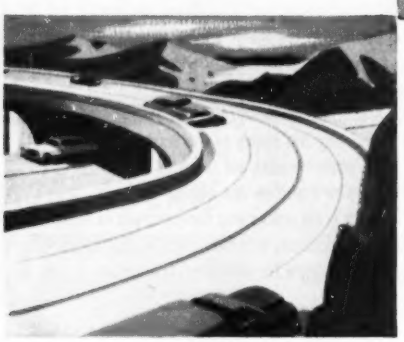


Keeping pace with highway progress...



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HYATT ROLLER BEARINGS

differential between reinforcing bars and the mix becomes too great. Itakura found that for optimum 7-day compressive strength the temperature should be kept between 80° and 100° F.

This method of heating requires from 25 to 30 kwh per cubic yard of concrete, and is economical in northern Japan because of very high fuel costs.

Terminal electrodes supplying the heat in the concrete can be iron wire, bars, or stripped sheets. These terminals may be placed on the form surface, the surface of the concrete, or in the concrete itself. Branch wires from the switches can be ordinary No. 8 or No. 10 galvanized, carrying either 220 or 110 volts.

Preferably the mix should be low slump and with a relatively fine aggregate. Itakura's formula for figuring current to temperature is as follows:

$T = T_o + KI$, $K = 0.24\ Vt/cm$

where T, T_o final and initial temperature of concrete in °C, respectively

I amperes in electrodes

V terminal voltage

t time of current flow (when switch is thrown) in seconds

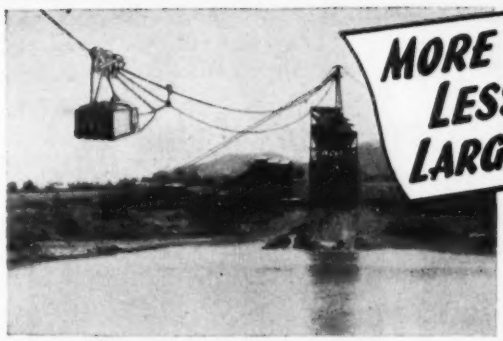
c, m specific heat of concrete and mass of concrete in grams

International briefs . . .

• **Scotch hydro**—North of Scotland's $42-million Breadalbane hydro-electric project in Perthshire has been approved by the British Electricity Authority. With completion (estimated for 1958) the six-dam, seven-power-station project will have a total installed capacity of 88,500 kw. The system has a drainage area of 186 sq mi in Perthshire and Argyll.

• **Electric power in Greece**—Four power plants that will double Greece's electric supply are nearing completion under the direction of Ebasco Services of New York. The five-year power expansion program is being financed by $104 million in Marshall Plan aid and Italian war reparations. French, British, Italian, and Greek contractors working on the project have scheduled the plants for completion at the end of 1953.

• **$10-million housing project**—A low-cost housing project estimated to cost more than $10 million is under study by Havana's municipal government. Embracing lands owned by the municipality in the Finca La Cienaga area, the 1,500 low cost houses are designed for city employees and will rent for $25-$35 a month.



Here is a Sauerman Slackline Cableway supplying a screening plant with 225 tons of gravel an hour. This machine digs as far as 900 ft. from plant. It is operated by one man and a 170 h.p. motor. Runs years on few repairs.

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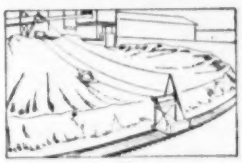
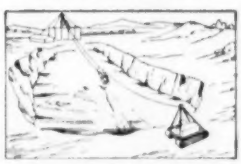

Sauerman Scraper Stockpiler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HHFA nominee favors gradual change

Albert Cole disapproves of increased public housing but will not upset administration-backed program

Albert M. Cole—a former congressman from Kansas, named last week to be administrator of the Housing and Home Finance Agency—plans no overnight changes when he takes office.

Administration changes will come gradually. Reorganization of the government's housing agencies and their staffs will be decided upon only after careful study.

It will be months, probably, before anything is recommended on transferring the Federal National Mortgage Assn. (Fannie Mae) into the Treasury, putting housing research into the National Bureau of Standards, or restoring independence to the Federal Housing Administration.

Cole is completely sold on slum clearance and urban redevelopment. He sees possibilities of doing even bigger things in this field, (ENR Dec. 25, p. 22) and he hopes to encourage private construction of low-rent housing. Cole is not opposed to federal aid in building low-rent housing, he wants to improve the methods of handling the program.

(Wide World photo)

ALBERT M. COLE named by President Eisenhower to head HHFA.

• **Political background**—Cole's nomination is generally considered a Republican National Committee appointment. The committee had insisted on the right to name the administrator of the HHFA.

Cole was politically acceptable to the committee. Further, he met the committee's criterion of knowing something about housing without being part of the housing business.

Cole was not a lender, yet he early received the support of the mortgage bankers. Later the home builders got behind Cole, when their own past president, Alan E. Brockbank, said he didn't want the job. Cole himself has never been a builder.

Public housing supporters feared Cole as an avowed enemy of public housing, thought he would scuttle the federally aided local low-rent housing program enacted by the Taft-Ellender-Wagner law in 1949.

Their fears were based on Cole's record of votes against public housing during his six years in the House.

Cole has expressed no desire or intention to scuttle the public housing program. He proposes to carry out the directives of Congress, and he wants to keep the public housing program alive.

• **Cole's program**—Cole thinks federal loans for local low-rent housing can be reduced further. Any such reduction would require greater cuts in the annual rate of starts for new dwelling units. (Last year's Congress approved only 35,000 new units for the year out of 135,000 authorized by the T-E-W bill.)

Cole's biggest problems will concern government policies on federal aids to home financing. Fannie Mae is a fast-growing agency that will be hard to control. Persuading Congress to curtail that government ready-money market for VA and FHA mortgages will take a lot of selling.

Cole believes in the necessity of letting mortgage rates adjust to the money market. HHFA has no control over VA rates but the administrator can do something about FHA rates.

• **Background**—Cole is a practicing lawyer from Holton, Kan., where he set up his office in 1925. The following year he was elected to a four-year term as Jackson County Attorney—his only full-time government job until he went to Congress in 1945. Meanwhile, he had served in the Kansas State Senate for four years starting in 1941.

Cole got his housing background while serving as a member of Congress. For the entire six years he was on the House Banking Committee, which considers every bill that affects housing.

Cole also served on a special subcommittee to investigate housing.

His defeat last year by a Democrat (Miller of the first Congressional District of Kansas) was laid to the Tuttle Creek Dam issue.

• **Who else?**—The name of Norman P. Mason, lumber dealer from Massachusetts and director of the U.S. Chamber of Commerce's construction and civic development committee, has been proposed to Cole as FHA commissioner.

A matter of interest

Cole's big problem (see story above) is the interest rate on federally backed mortgages. The administration wants housing volume to stay up: Potential home-buyers (vets and non-vets) want mortgage interest rates to stay down. At the same time the administration wants to tighten government credit to stabilize the dollar. Meantime here is the situation:

FHA mortgages—at present interest rates—are financing about one-quarter of the new house sales. This is about as much as housing officials think ought to be done by FHA.

VA loans are finding a market in some areas, but there are big regions where VA money can't be found and GI loans are being sold at discounts.

FNMA, with enough authority to keep buying until the middle of the year, is supporting the VA mortgage market.

This leaves two quick solutions for the administration: First increase Fanny Mae's resources so it can support the present market without increasing the interest rate; or secondly, jack up the interest rate—a matter of one-half percent (4% and 4½% for VA and FHA respectively, to 4½%).

Big drawback to the first: This is not a free-market solution.

Big drawback to the second: This will hike up costs for home buyers and may freeze the big portfolio of loans already owned by Fannie Mae.

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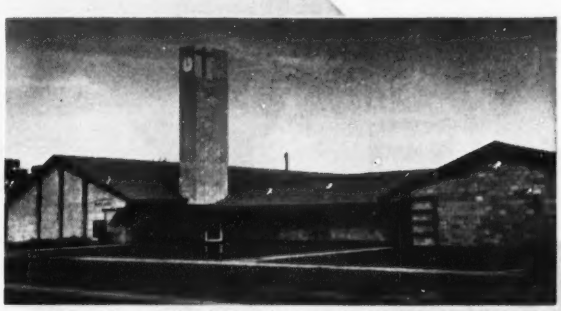

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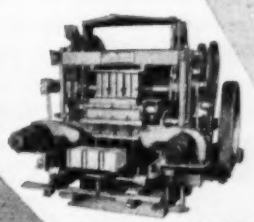

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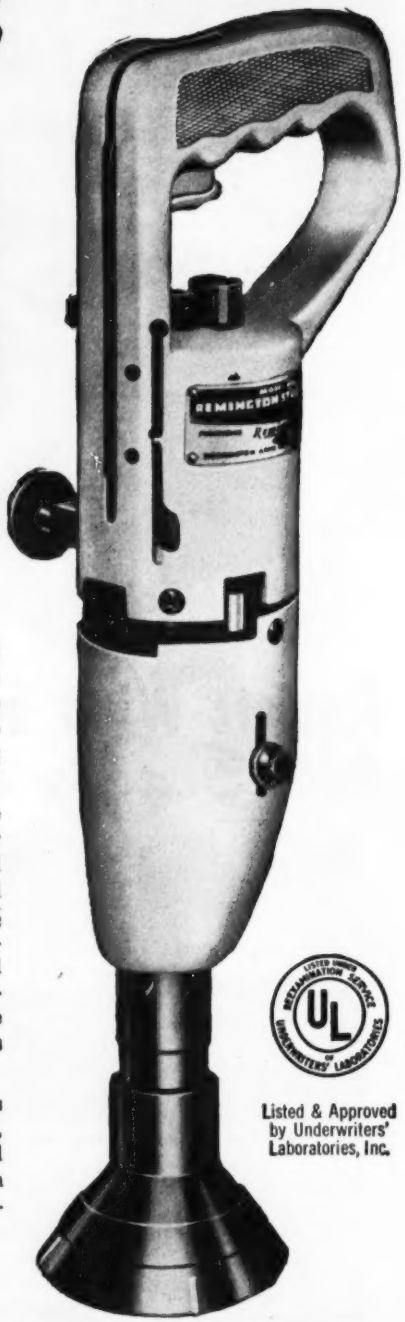

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Railroad's chief engineer retires after 46 years

Bernard Blum, chief engineer of the Northern Pacific railway since 1928, retired this week (March 1) after 46 years with the company.

Blum's retirement was announced simultaneously with the appointment of H. R. Peterson, assistant chief engineer, to succeed him as chief engineer.

Following graduation from Massachusetts Institute of Technology, Blum was assistant instructor there for a year before entering railroad service with the Chicago Junction Railway in 1905. On March 1, 1907, he began his career on the Northern Pacific Railway as an assistant engineer.

Blum was successively roadmaster, assistant district engineer, district engineer, and maintenance-of-way engineer before being named chief engineer in 1928. As head of the engineering department, he has supervised many important line changes and improvements to roadway and structures.

Peterson, a native of Minneapolis, entered NP service in 1918 as a draftsman in St. Paul following graduation from the college of engineering, University of Minnesota. Before becoming office engineer in St. Paul in 1940, he did engineering work on bridge and branch line construction and grade separations. In 1944 he became principal assistant engineer and in 1946 assistant chief engineer of the railroad.

Chemical plant builders name new chief engineer

The construction department of International Minerals & Chemical Corp. got a new chief project engineer last week with the appointment of James L. Taylor to the important post.

An International employee since 1940, Taylor first served on the engineering staff of the potash division and later, with the phosphate division, was in charge of design for the company's Peace Valley Plant. He was chief engineer of the potash division's Carlsbad operations just before January, 1950, when he joined the engineering division as construction engineer.

Prior to his joining IM&C, Taylor had had more than 19 years of general mine and construction experience. He is a civil engineering graduate of Tri-State College which is located in Angola, Ind.

Careers . . .

• **Appointed**—New chairman of the Engineering Manpower Commission, Engineers Joint Council, is **Thomas H. Chilton,** technical director in the engineering department of E. I. duPont de Nemours & Co. . . . Appointment of **Milton Male** as manager of the building and construction industries section of U. S. Steel's commercial department was announced recently . . . Directors of the Structural Clay Products Institute have announced appointment of **Henry E. Bollman,** Denver, as executive director. **Edward T. Telford,** traffic engineer in the Sacramento office of California's Division of Highways, has been transferred to the division's District VII office in Los Angeles as district engineer in charge of planning . . . **William L. Haas,** Washington, D. C., an employee of the federal Bureau of Public Roads, has been named to head the newly organized administrative department of the Wisconsin State Highway Commissioner . . . **Wilfred L. Karrer,** Bureau of Reclamation construction engineer on the Kennewick Division, Yakima Project, Wash., has arrived in Israel to serve as irrigation adviser to the U. S. technical cooperation director in the development of the national irrigation water supply there.

• **Elected**—Detroit members of the Associated Contractors of America have named **A. S. James** to be president of their organization . . . **George H. Field** will head the General Contractors Association of Milwaukee in 1953 . . . Members of the Milwaukee Builders' Association have elected **Francis J. Schroedel** as their president . . . **J. Fred Murray** has taken over the top post of the Wilmington, N. C., Contractors Association . . . Directors of Peter F. Loftus Corp., Pittsburgh, have elected **Lester E. F. Wahrenburg** executive vice-president and general manager.

• **Honored**—The Interior Department's Conservation Service Award has been conferred posthumously upon the late **Clifford H. Stone,** only director of the Colorado Water Conservation Board . . . Ohio's Society of Professional Engineers this month cited **Luther T. Fawcett,** chief engineer of the Mahoning Valley Sanitary District, for outstanding contributions to the public welfare.

• **Announcements—Benjamin Everett Beavin, Sr.,** has joined the firm of Porter Urquhart Associates and O. J. Porter & Co. New firm name is Porter, Urquhart & Beavin.

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OBITUARY

Sigvald Johannesson, 75, a civil engineer who was identified with many of the important engineering feats of the New York–New Jersey area, died at Trenton, N. J., Feb. 22. A Dane, he came to the U. S. in 1903 after serving as a designer on the London underground railroad system. He was first engaged on the Pennsylvania R.R. tunnels into New York, and later participated in reconstruction of the city's elevated railways and construction of the Hudson & Manhattan Ry. tunnels. Joining the New Jersey Highway Department in 1924, Mr. Johannesson came into prominance as one of the principal designers of the 20-million Pulaski Skyway from Jersey City to Newark. In more recent years Mr. Johannesson headed the department's planning and economic division. He retired in 1948.

Werner Boecklin, 82, an 1891 C.E. graduate of Columbia University, died in New York City, Feb. 20. He had planned the real estate development at Kew Gardens, N. Y.

James B. White, 65, retired senior civil engineer in the New York State Department of Public Works, Division of Highways, died Feb. 15. He received a civil engineering degree from Rensselaer Polytechnic Institute in 1910.

Harold A. Kemp, 58, director of sanitary engineering for the District of Columbia, died at Washington, Feb. 16. He had been a leader in the fight against pollution in the Potomac River. He was head engineer of the Board of Engineers for Rivers and Harbors of the War Department at the time he joined the District government in 1944. He had been a member of the interstate Commission on the Potomac River Basin since 1944 and was chairman from 1949 to 1951. Mr. Kemp was consulting engineer for the office of Civil Defense planning in 1948, and in the present effort was assistant director for engineering services and co-ordinator of utility services.

Herman C. Kuhl, 68, head of the Eau Claire Engineering Co. at Eau Claire, Wis., died there Feb. 5. He was a civil engineering graduate of the University of Wisconsin and had conducted a general contracting business for over 20 years at Eau Claire.

Herbert R. Clarke, 71, retired chief engineer of the Chicago, Burlington

& Quincy Railroad and its subsidiary lines, died in LaGrange, Ill., Feb. 18. A graduate of Monmouth College, he entered Burlington service as a rodman in 1907. Later he served as resident engineer, assistant roadmaster, roadmaster, and general roadmaster at various locations on the system. In 1921 he was appointed district engineer, Maintenance of Way at Lincoln, Neb., and in 1925 was promoted to general inspector, permanent way, at Chicago. In 1932 he was appointed engineer maintenance of way and in 1942 was promoted to chief engineer maintenance of way. He was appointed chief engineer on Jan. 1, 1943, and retired Jan. 1, 1953. He was a past president of the American Railway Engineering Association of which he was long a member.

Harvey F. Brown, 69, former division engineer of the Ohio highway department, died at Dover, Ohio, Feb. 18. He was a graduate of Ohio State University, and in addition to his highway work he had held posts with the PWA, WPA and the Muskingum Conservancy District in the state of Ohio.

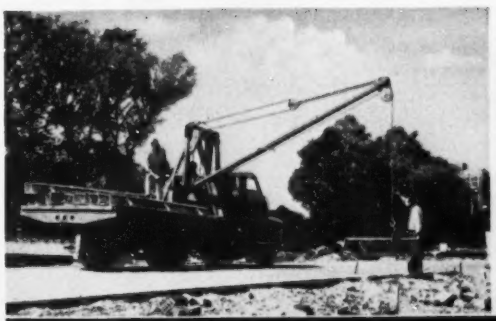
Charles H. Fowler, for 16 years connected with the H. K. Ferguson Co., died in Berea, Ohio, Feb. 17. He was a civil engineering graduate of Cornell University.

Maurice Steele, 69, civil engineer, died at Canton, Ohio, Feb. 12. He was a 1907 graduate of Purdue University. He had done engineering work on a number of schools and housing projects in Cleveland. Earlier he had worked for the federal government on several irrigation projects in the West, with headquarters at Salt Lake City, Utah.

Thomas E. Aubrey, 52, retired civil engineer, died at Tuscon, Ariz., Feb. 2. He had been an engineer for the Ohio highway department, Cuyahoga County, Ohio, and the U. S. Corps of Engineers.

Arthur Osbourne Ridgway, 82, a retired chief engineer for the Denver and Rio Grande Western R.R., died in Denver, Jan. 18. He had worked for that railroad for 57 years before his retirement in 1948.

Mr. Ridgway was a University of Kansas graduate, and the author of a number of books and articles on railroad history and allied subjects, on which he was a well known authority.



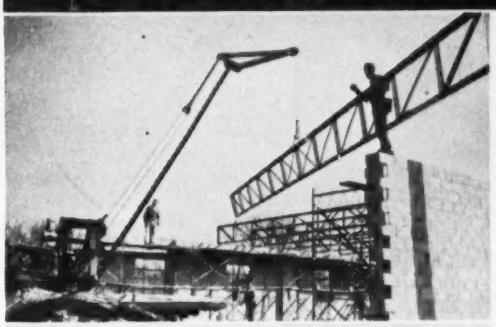
● **Fits on the frame of any truck, 1½ tons or larger!**

● **Hydraulic power swings and lifts boom!**

PITMAN

HYDRA-LIFT

low cost hydraulic truck crane!



● **Lifts up to 6,400 pounds!**

● **Boom telescopes from 12 to 17 to 22 feet!**

● **Requires only 40 inches behind the truck cab!**

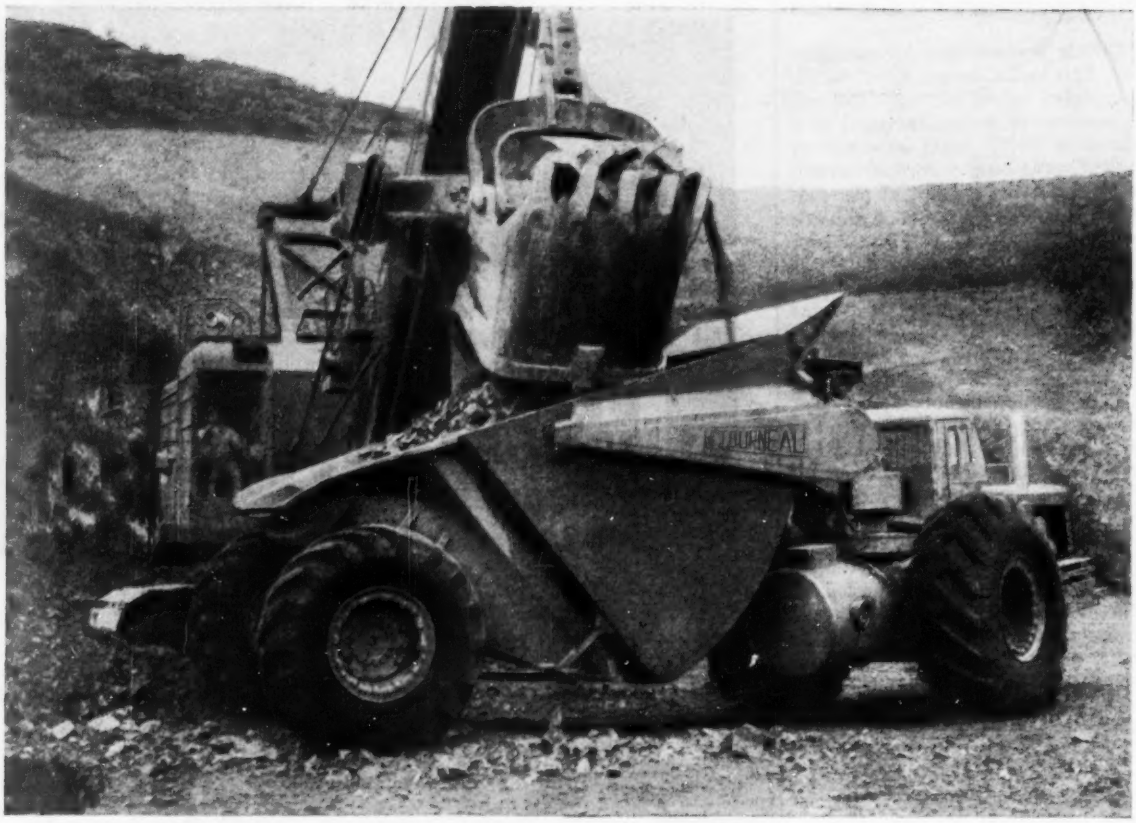
● **Truck moves from job to job at normal truck speed!**

Hydra-Lift slashes costs on dozens of lifting and hauling jobs. On the market for just one year, it's already been put to work cutting costs and saving time by scores of pipe, paving, sewer, general and building contractors, gas and water companies, transfer companies, mines, refineries and others all over the country. Write today for full information on the new, economical Hydra-Lift!

Hydra-Lift is manufactured by Pitman Mfg. Co., 300 West 79th Terrace, Kansas City, Missouri

(Advertisement)

LeTourneau pictures of the month . . .



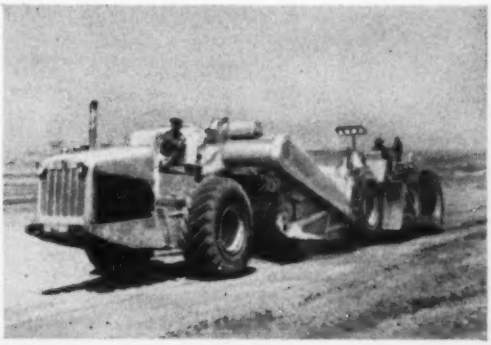
BAGDAD HAULER —This 40-ton Tournarocker is one of Bagdad Copper Corp's haul units. The company, which mines copper at Bagdad, Ariz, also owns a 50-ton Tournarocker. Cycle of 4500 ft takes the 40-ton 'Rockers 11.2 min, despite 650 ft of 10% adverse grade and narrow haul roads. Cycle time includes 2 min to load from a 4-yd shovel, and ½ min to spot and dump. Disc-type 4-wheel air brakes let operator haul in 3rd gear along the narrow benches with complete confidence and safety

SCRAPER BECOMES DOZER — Down in sports-loving Uruguay, this D Tournapull self-loaded 52,300 yds of clay to level a site for a new stadium. Hourly output averaged 100 yds. With its dozer blade, the "D" also dozed fill and broke up the surface of a highway which crossed the stadium area.

22% MORE COAL —Stockpiling coal for a power station in Rhode Island, Tournatractor dozed 16,850 cu ft (420 tons) of coal in 2 hrs . . . outproduced a crawler-tractor working under identical conditions by 77 tons (or 22%). Coal was moved 190 ft down a gradual slope, then over a steep 25-ft bank.

(Advertisement)

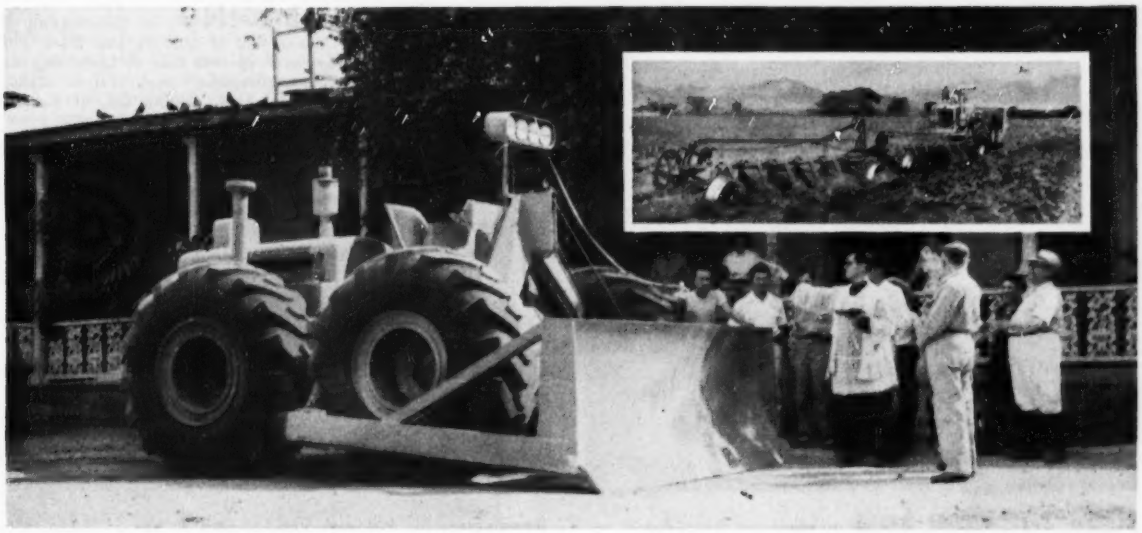
Performance reports on LeTourneau equipment



DIAMOND MINER — Near Kasai, Belgian Congo, 9 C Tournapulls and 5 Tournatractors are stripping 7,850,000 cu yds of overburden to uncover industrial diamond deposits. Push-loaded by a 186 hp Tournatractor, each Tournapull removes 6 to 7½ loads (59 to 73 pay yds) of clayey sand hourly on a 1-mile cycle.

LOVELY VIEW — New 16-yd scraper for C Tournapull mounts control motors on bracket above yoke. Says Bob King, operator for Kiker & Yount of Reidsville, N C, "This new Carryall has everything beat. With the motors up out of the way, I can watch the pusher better. This Carryall spreads better, too. Dirt really rolls out."

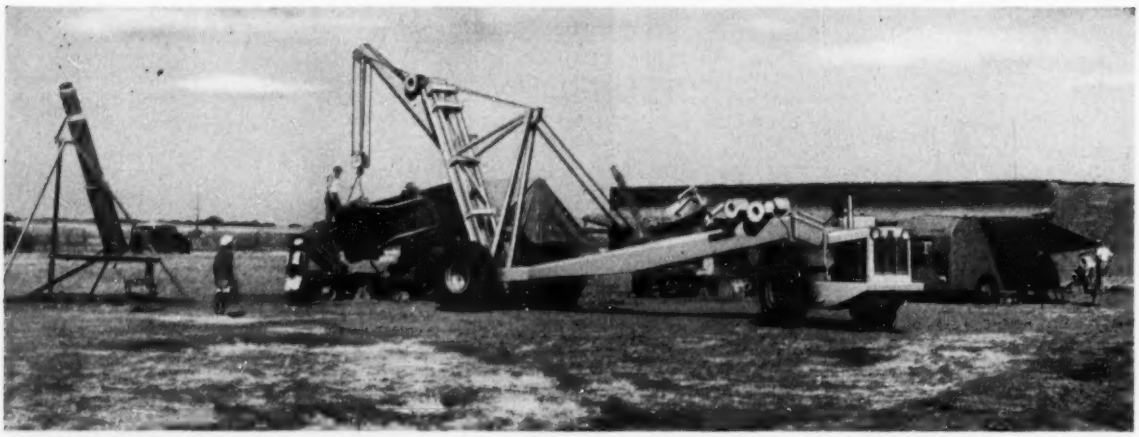
40% LOWER COSTS — No, these rocks weren't "frozen" into the Tournarocker. High-speed photography makes them look like it, but actually dump took only 5 to 10 seconds on this W. Va. road job. Contractor C. E. Wetherall also reports his Tournarockers give 40% lower hauling costs than trucks. Output for his two 9-ton Tournarockers on typical 1400-ft cycles: 144 pay yds of shovel-loaded rock hourly.



DOUBLE BLESSING — In ceremony, traditional all over South America, padre blesses new Tournatractor. Hacienda Pata-Poo, Peru owner of the unit, has received a blessing, too. Their 19 mph Tournatractor, pulling 2 gang disks, deep-plows 2½ acres hourly — twice crawler output. Tournatractor also pulls 24-in. ripper for sub-soiling. This tool digs 20 in. deep into hard clay, brings up sub-surface water unobtainable with other methods. Explains Plantation Manager de Miguel, "The extra water makes our cane grow healthier, weigh more, and increases sugar content — thus producing more sugar and more profits."

Continued on next page . . .

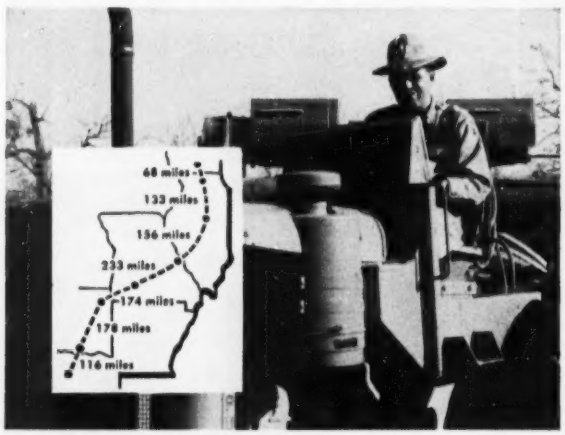
LeTourneau pictures of the month (cont'd) . . .



336 HR JOB IN 12 HRS—When a last-minute telescope breakdown threatened success of the US Navy and National Geographic Society's Solar Eclipse expedition to Khartoum, the Anglo-Egyptian Sudan Government came to the rescue. Its versatile 15-ton Tournacrane carefully hoisted and positioned the delicate 2-ton dish-assembly. The job, which would have taken about 336 man-hrs if done by hand, took only 12 man-hrs with the Tournacrane. Instead of missing the Eclipse they had traveled 7000 miles to see, astronomers not only saw the entire event, but had plenty of time to test and re-adjust settings.

60 LOADS PER HR — At Chemult, Ore, Tournatractor-pusher and 3 self-propelled scrapers account for 60 loads of pumice hourly on 600-ft haul. Load time for over 16 loose yds varies from 25 to 45 seconds. With slower-moving crawler-pusher, output would be about 1/3 less. Contractor: R. A. Heintz Construction Co, Portland, Oregon.

PRECISION SPREADING — Constructing a highway overpass at the intersection of U.S. 16 and State 190 near Pewaukee, Wis, C Tournapull spreads load of sandy clay on narrow fill. "Rig is really maneuverable," says Warren Mallo, Job Supt for prime contractors, J. R. Griffith Co, of Racine. "They never have to be backed up to turn around."



1058 MI FOR $60 — Meet the record-holder — Bill Kastner of Madison, Wis! To find warm-weather dirtmoving, Contractor Kastner made the longest solo highway trip of the year with a Tournapull, 1058 miles, Wisconsin-to-Texas. He started the journey at 2 pm Jan 3 at Madison. By 6 pm that day, he had arrived at Rockford, Ill . . . 68 mi in 4 hrs. The second day he ran into a blizzard and made only 133 mi to Bloomington, Ill. His next stop, on Jan 5, was St. Louis, 156 mi further. On Jan 6 he drove 233 mi to Springfield, Mo . . . Jan 7, 174 mi to Pryor, Okla . . . Jan 8, 178 mi to Durant, Okla. At 1:30 pm Jan 9, Kastner arrived in Arlington, Tex. In 6 days, he had driven 1,058 mi (all by daylight) . . . used 180 gals of fuel . . . average, 5.9 mi per gal. Total expenditure for fuel, lodging and food: $59.98. Saving over rail freight: $450.

(Advertisement)

Performance reports on LeTourneau equipment

8 JOBS FOR JOHNS-MANVILLE — Even though the temperature often reaches 50° below zero, Canadian Johns-Manville works their Tournatractor 24 hrs a day, 6 days a week at their asbestos pit near Matheson, Ontario. One winter month, rig put 535 hrs in on 8 scattered jobs (other hrs went for job-to-job travel, lubrication, etc.). Of total time, unit spent 238 hrs dozing ore to crusher, cleaning around 4 shovels, and maintaining ore stockpile. Another 87 hrs went into tailings-dump maintenance. 62 hrs into waste-dump maintenance. Tournatractor worked 43 hrs towing compressors, wagon-drills, and other mine equipment. For 62 hrs, it plowed snow — in one typical 6¼-hr period, traveling 30 mi and opening 26 mi of road. For 43 hrs, it did such odd jobs as clearing rock and clay overburden, and helping shovels up steep grades. Its mechanical efficiency: 95%.

GRADES FOR AIRCRAFT FACTORY — Tournatractor, with 2½-yd dozer, grades for construction of an aircraft parts factory near Monmouth County Airport, Allenwood, N.J. With down-pressure attachment on blade, rig makes smooth cut over uneven ground. Owner is E. I. Brown, Allenwood.

BRING ON THE DIRT — 5 new C Tournapulls belonging to J. Robert Bazley Inc, Pottsville, Pa, line up for start of a 4-lane bypass around Hummelstown, Pa. For further information on any of these machines, write R. G. LeTourneau, Inc, Peoria, Ill.

LETOURNEAU LET EQUIPMENT

Tournapull, Tournarocker, Tournacrane, Carryall—Trademark Reg. U.S Pat. Off., Tournatractor—Trademark Pic. 358-C

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
April Materials, and Labor Prices will appear in April 9, 1953 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash. dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.: truckload del.: per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.87	$3.56	3.40	$2.075	$2.075	$1.83	$2.20	$2.20	$1.87	$1.99	$0.21	$0.21	$12.06
Baltimore	3.76	3.45	3.38	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡i	2.55‡a	.17	.17a	11.25
Birmingham	3.11	2.81	....	2.38n	2.38n	2.08n	2.50	2.50	1.15	1.35	.165	.165	9.85
Boston	4.01	3.69	3.81	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.20	.22a	11.50k
Chicago	3.33	3.02	....	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.44/11.94
Cincinnati	3.61	3.40	3.40	2.09‡e	2.14‡e	2.14‡e	2.44‡e	2.44‡e	....	....	.21	.225a	11.45
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	3.81a	3.81a	2.95‡	2.95‡	....	.23	12.40d
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.59	3.89	1.85	2.00	1.20	....	....	....	....	.22	.25a	10.50
Detroit	3.27	3.00	3.05	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.70f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	....	....	.20ag	.215c	11.60b
Los Angeles	4.00a	3.60a	4.72	1.95a	2.20a	1.95a	1.95a	2.08a	....	....	.125/m	.23m	10.43/h
Minneapolis	3.80d	3.49d	3.41	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.21/k	....	12.15/i
Montreal	3.16ac	2.96ac	....	3.00	3.00	2 25	1.65j	1.90j	....	....	.20	.20a	10.85eh
New Orleans	3.20	3.02	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.86	3.55	3 43	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.80an
Philadelphia	3.43/3.82‡	3.12/3.49‡	3.43/3.48‡	2.75‡	2.75‡	2.35‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22d	.22d	12.50
St. Louis	3.27/3.48b	2.84/3.10b	3.05/3.22	2.90am	2.70am	2.30/2.70am	1.70j	1.70j	1.50	1.50	.215	.215ei	10.40
San Francisco	3.36	2.96	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.23el	10.70e
Seattle	3.75a	3.25a	4.50a	3 00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	11.40j

‡Delivered. * Prices incl. dealers discount except as noted.
CEMENT: a Subj. to 10¢ dis. b Less 2% for cash. c CL price dealers discount not incl. d Dealers sell only LCL. h LCL.
SAND, GRAVEL, STONE & SLAG: a Truck lots. b Per cu. yd. e 5 tons or more. e ½". f Pea gravel. g Less 5% for cash. h Less than 5 tons. i Sales tax incl. j F.o.b. quarry. k Barge lots asd. l F.o.b. scow Hudson river. m Less 2% for cash. n F.o.b. cars.
CONCRETE BLOCK: a Cinder. b Waylite. c Haydite. d Celocrete. e 5⅓ x 8 x 12 in. f 8 x 4 x 16. g F.o.b. truck at job. i Less 2% for cash. j Less 1% for cash. k 8x8x18. l F.o.b. plant San Rafael. m F.o.b. yard.
READY MIXED CONCRETE: a 5 cu. yds. or over del. Man. b 25 cu. yds. or more. c 10–100 cu. brackets. d 1–3 mi. zone. e 2,000 lb concr. f 2500 lb. comp. h Less 50¢ for cash. i 5% off for cash. j 2% off for cash. k Sales tax included. l 1:2½:4. m F.o.b. yard. n Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind	$2.55†	Steelton, Minn	$2.65†	Muskegon, Mich	$2.70†	Toledo, O	$2.60†
Clinchfield, Ga	2.60†	Independence, Kan	2.50†	Leeds, Ala	2.45†	Saginaw, Mich	2.60†	Milwaukee, Wis	2.75†
Kingsport, Tenn	2.60†	Hannibal, Mo	2.55†	Duluth, Minn	2.65†	Wyandotte, Mich	2.60†	Green Bay, Wis	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa	2.60†	Hudson, N. Y	2.60†	Buffalo, N. Y	2.60†	Ironton, O	2.60†
Nazareth, Pa	2.60†	Universal, Pa	2.65†	Alpena, Mich	2.50†	Oswego, N. Y	2.75†	Montreal City	2.66
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich	2.60†	Cleveland, O	2.60†	W. Winfield, Pa	2.65†

† *Prices to hold for first quarter of* 1953.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	58.00‡	.....	22.00i	.....	.0809i	0.15i	.09iw	.17iw	.09i	.09i	0.12i
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00ax	35.50ax	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bx	29.25bx	.0875bw	.16bw	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	58.00d	5.03g	23.004	.....	23.004	.....	.1025⁴w	.....	.....	.114	.184
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	.....	26.82x	.....	.117w	.....	.0925	.....	.2811r
Kansas City	e	e	e	16.50el	...	.055	.....	.07ew	.....	.0585e	0.435	.....
Los Angeles	e	.....	e	15.50dmz	...	15.50dzz	.....	17.00dz	.....	16.00dv	.0825f	.1725f
Minneapolis	.....	.....	2.97h	25.07	.....	24.07	.....	.0894w	.....	.0794	.0935	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.193n	16.30nu	18.80nu	.132n	.184ns	.225ns
New Orleans	.....	.....	.....	17.50s	....o	17.50sv	.....o	.085sw	.....o	.0825p	.0825	.....
New York	.....	.....	3.12f	26.26q	47.59q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.21	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.68f	.....	.1698	.....	.0865/.080w	.....	0.15	.0975	.....
San Francisco	.....	55.00e	.....	17.50y	33.00yp	17.50yks	23.00yks	20.00y	37.50y	18.75e	.085y	.....
Seattle	.....	.....	.....	17.00h	37.50h	16.25hx	.....	19.50h	.....	18.50hs	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: a CL. b 3½ x 4 x 8½. c 2½ x 8½ x 4. d LCL, truck deliveries. e Not used. f 2" interior 6¢ treat. g 3". h 8¢ treat. i 3 x 3⅝ x 8½.
ASPHALTS: a Price at plant, Everett, Mass. b F.o.b. refinery, Lockport, Ill. c F.o.b. Sugar Creek, Mo. d F.o.b. refinery, El Segundo. e F.o.b. Baton Rouge. f F.o.b. Wood River or Roxana, Ill. g F.o.b. Richmond, Calif. h F.o.b. Martinez. i F.o.b. refinery, Baltimore. j F.o.b. refinery, Inglewood, Calif. k 50–110 penetr. l Less than 100 penetr. m 40–80 penetr. n Tax incl. o Drums not avail. p Shipped in steel bbl. q 40–85 penetr. r In customer's drums. s Shipped in drums, per drum. t 85–300 penetr. u Per 100 gal. v Per ton. w Per gal. x Also tank trucks. y F.o.b. Oakland. z F.o.b. refinery, Cleveland. aa F.o.b. Norco, La.

(*Continued on page 73*)

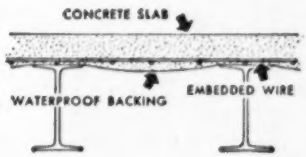
Broad decks of this modern function-engineered school poured over STEELTEX FLOOR LATH

When architect J. Robert F. Swanson and his staff at Swanson Associates in Bloomfield Hills, Michigan, set out to design the splendid new Birmingham, Michigan, Senior High School, they did far more than simply construct a handsome structure to house a specified number of students. For two years they joined in study with Birmingham school officials to exactly determine local educational philosophy and objectives, and crystalized their thinking with an on-the-spot survey of the best school facilities throughout the free world. The result was a low, wide-spread campus-type of structure, requiring many thousands of feet of concrete decks.

The architects specified that the concrete be poured over Steeltex Floor Lath, and they did so for very good reasons. The strong welded-wire mesh added great strength to the slab, while the tough water-proof backing permitted work on the floor below and assisted in proper curing of the concrete. These inherent virtues tended to allow greater latitude in deck design.

If you are not completely familiar with the use of Steeltex in concrete floor construction, it may well be of profit to you to contact us or consult our catalog data in Sweet's before designing your next structure. For details, write for Catalog D.S. 133, Dept. ENR, Pittsburgh Steel Products Company, Grant Bldg., Pittsburgh 30, Pa.

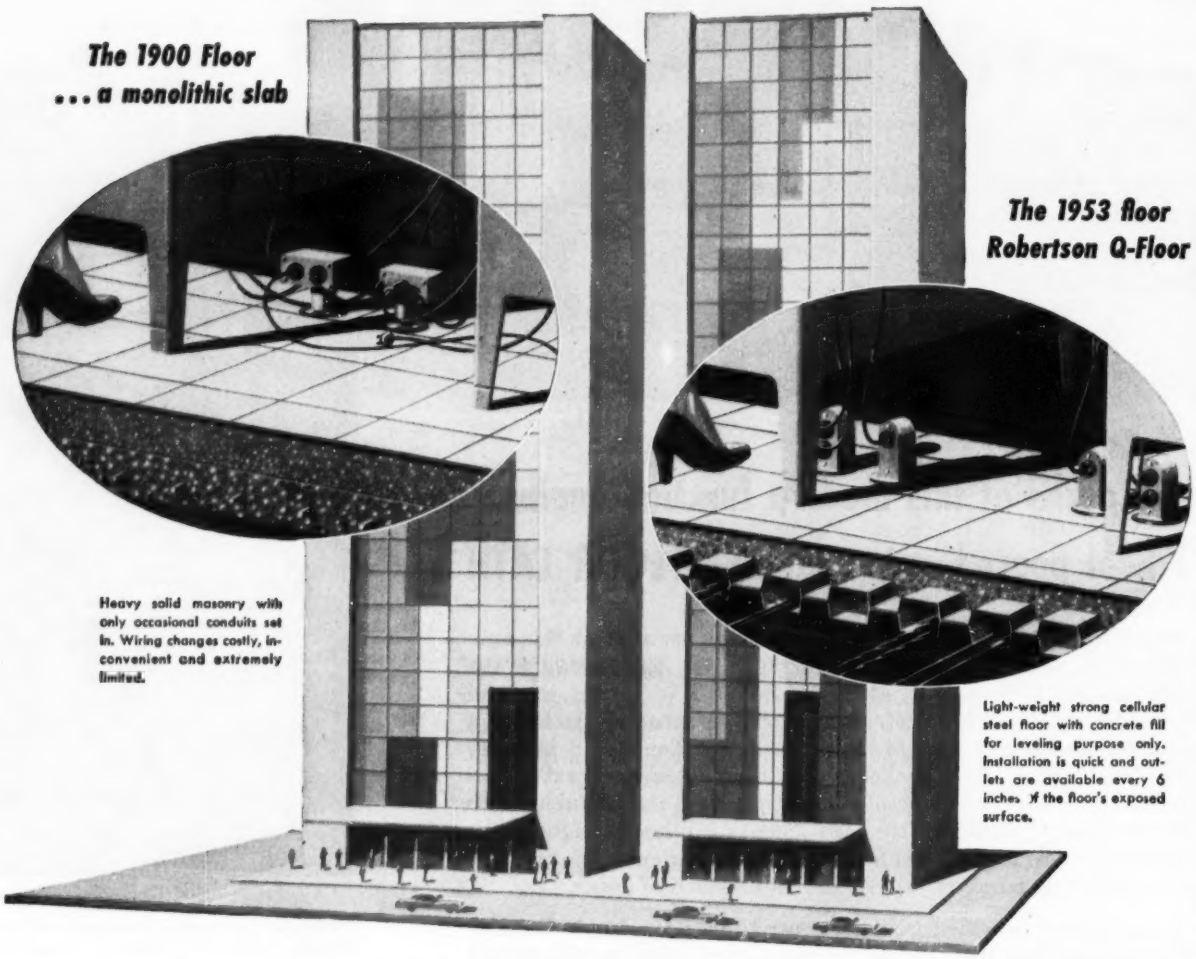
Note, in the cross-section and close-up that the weight of the wet concrete forces the backing away, which permits the galvanized welded wire mesh to assume its proper position in the slab. Steeltex Floor Lath also performs two other functions. It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.



Pittsburgh Steel Products Company

A Subsidiary of Pittsburgh Steel Company

Will the Building You Design in 1953 Have 1900 Structural Floors?


The 1900 Floor
... a monolithic slab
The 1953 floor
Robertson Q-Floor
Heavy solid masonry with only occasional conduits set in. Wiring changes costly, inconvenient and extremely limited.
Light-weight strong cellular steel floor with concrete fill for leveling purpose only. Installation is quick and outlets are available every 6 inches of the floor's exposed surface.

Q-Floor provides truly modern structural floor construction because it permits quick change of electrical outlets at 6-inch intervals over the entire building. This effectively eases the time and expense of moving equipment and partitions. The advantages of Q-Floor on the construction job are many, and add up to lighter weight and resulting lower cost. Then too, Q-Floor speeds construction which results in earlier occupancy. When you design a new building, you'll find it will pay dividends to insist on Q-Floor and stave off obsolescence in the years to come. Write for literature.

the finest buildings in the country have . . .

Q-FLOOR

A product of **H. H. ROBERTSON COMPANY**

2420 Farmers Bank Building, Pittsburgh, Pa.

Offices in All Principal Cities in the United States and Canada

World-Wide Building Service

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.85	$3.90	$3.95	$7.85	....	$75.50	$85.00	Not	$4.925	$6.65	$4.775	....
Chicago Area	3.85	3.90	3.95	7.85	$4.675	75.50	85.00	avail-	4.925	6.65	4.775	....
Pittsburgh Area	3.85	3.90	3.95	7.85	4.675	75.50	85.00	able	4.925	6.65	4.775	$9.85
Buffalo Area	3.85	3.90	3.95	7.75	4.675	75.50	85.00	....	4.925	6.65	4.775	9.85
Cleveland	....	....	3.95	7.85	4.675	.....	.....	....	....	....	....	9.85
Youngstown Area	....	....	3.95	....	....	.....	.....	....	....	6.65	....	....
Geneva	3.85	3.90	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	....	.....	.....	....	....	6.65	....	....
Pueblo	4.30	4.70	4.75	....	....	75.50	95.00	....	4.925	6.65	4.775	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS 5 tons to carload lot *b* New billet	Per 100 lb., base price *u* Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING*d* Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$7.31	$7.11	$7.11	$.025	$...	$38.00‡	$42.00‡			
Baltimore	6.47	6.37*l*	....	....	....	42.00	45.00			
Birmingham	5.95	5.80	5.80	.05	.15	47.00*p*	52.00*p*			
Boston	6.56*a*	6.92	6.92	....	....	40.00	43.50			
Chicago	5.95	5.33*ff*	5.33*ff*	.0625	....	46.00*C*	51.00*C*			
Cincinnati	6.42*ak*	6.63*r*	....	....	.15	37.50*zee*	41.00*zee*			
Cleveland	6.28	5.31*v*	....	---	---	36.50‡	39.00‡			
Dallas	9.05	7.25	7.25	---	---	49.00	52.00			
Denver	7.55	7.50*e*	....	---	---	50.00*s*	62.00*qs*			
Detroit	6.42	6.24*n*	---	---	.20	53.00	58.00			
Kansas City	6.70*nn*	6.97	....	---	---	35.50	39.00			
Los Angeles	6.70/*kk*	6.57*g*	....	---	---	48.00	54.00			
Minneapolis	6.51*kk*	7.60*ll*	7.60*ll*	---	---	36.00	39.00			
Montreal	7.00*iB*/7.00*i*	4.90*i*	4.90*g*	---	---	58.00*kk*	64.00*k*			
New Orleans	....	5.80*ok*	....	.05	---	66.00	60.00			
New York	6.77	6.71	6.71	---	.30	38.50*st*	42.50*st*			
Philadelphia	6.42	6.67	....	---	....	39.50‡	43.50‡			
Pittsburgh	5.80/6.00	5.80/6.00	....	---	.10	37.60	39.60			
St. Louis	6.35*a*	5.95*c*	5.95*c*	---	....	49.00*aa*	55.00*aa*			
San Francisco	7.12	6.50*l*	....	---	....	40.50	43.50			
Seattle	4.50*e*	5.80*el*	....	---	....	57.00*mm*	47.00*mmz*			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.81 F.o.b. Mill: Monessen, Penn., $2.81

A.P.M.* Joliet, Illinois, Donora, Penn., $1.96 F.o.b. Mill: Monessen, Penn., $1.96

A.P.M.* Joliet, Illinois, Donora, Penn., $2.95 F.o.b. Mill: Monessen Penn., $2.95

* At Producing Mill.

‡ Delivered. *b* Less than 700# add 50¢; 700–1499# add 65¢; 1500 to 7999# add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivered in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq. yd. *n* 5–10 tons. *o* 5 to 20 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed. 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢; ¾ in., ⅞ in., 15¢, 1 in., 25¢, 1¼ in., 50¢, 1½ in., 80¢, 1¾ in., $1.90. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000–19,999 lbs. *ii* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1–5 tons. *ss* 10 tons to CL. *zz* 2000–9999 lbs. *A.* Amer. struct'l shapes. *B.* Canadian shapes. *C.* Deliv to contractor.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.*a*	ASBESTOS CEMENT PIPE per lin. ft.; f.o.b. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in:
Atlanta	$101.00	$1.44	$2.42	.545	1.27	4.82	12.925	248.00	356.00	1.23	2.62
Baltimore	109.00	1.46	2.42	.546	1.053	4.275*A*	11.3775*A*	178.20	274.80	.90	2.45
Birmingham	101.00	1.44	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25*m*	2.75*m*
Boston	113.00	1.46	2.20	.553*uxz*	1.0665*uxy*	4.41*uxy*	11.90*uxy*	187.80*s*	289.20*s*	1.55*mg*	3.80*mg*
Chicago	107.00	1.44	2.20	.70*m*	1.35*m*	5.62*m*	13.50*m*	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.46	2.29	.567*y*	1.093*y*	4.32*y*	11.175*y*	164.40	254.10	.75*m*	2.80*m*
Cleveland	108.00	1.46	2.29	.46*z*	.89*z*	3.55*z*	9.02*r*	158.00*m*	245.65*m*	.75*m*	2.95*m*
Dallas	112.00	1.46	2.54	.436	.822	3.234*b*	9.17*b*	.....	.....	.49	1.60
Denver	115.00	1.55	2.54	.43*dd*	.74*dd*	3.18*dd*	....	.....	.....	.74*m*	2.50*m*
Detroit	108.00	1.46	2.29	.72	1.39	5.58	14.91	240.00*m*	360.00*m*	.80	3.20
Kansas City	113.00‡	1.46	2.29	.515	.92	3.64	9.20	216.70	465.00	.70*g*	3.00*g*
Los Angeles	124.00	1.53	2.29	.51*f*	1.07*f*	5.24*f*	13.06*f*	228.20*f*	348.90*f*	.95	2.75*ff*
Minneapolis*	112.00	1.50	2.42	.72*mo*	1.32*mo*	5.32*mo*	....	.....	.....	1.38*h*	3.93*h*
Montreal	110.00	....	....	.85*z*	1.50*z*	5.25*z*	....	.....	.....	1.17*j*	3.11*j*
New Orleans	101.50	1.44	2.42	.513	.93	5.15	....	265.00*bb*	455.00*bb*	.65	2.29
New York	111.35	1.46	2.20	.62	1.20	4.81	12.60	.....	.....	1.15	2.75
Philadelphia	110.00	1.44	2.20	.65	1.25	4.95*A*	12.65*A*	300.00‡	350.00‡	1.55*A*	3.75*A*
Pittsburgh	109.00	1.46	2.20	.428*m*	.794*m*	2.97*m*	7.92*m*	149.00	232.00	1.05*A*	2.50*A*
St. Louis	112.00	1.46	2.29	.51	.93	3.65	9.21	160.00*l*	360.00*l*	1.20*il*	2.70*il*
San Francisco	122.00	1.55	2.29	.61*d*	1.20*d*	5.03*d*	12.57*d*	240.00*l*	400.00*l*	.73	3.02
Seattle	124.00	1.55	2.42	.51*b*	.91*b*	....	....	150.00*c*	.....	.86*ee*	2.56*ee*

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b* Extra strength ASTM C 200-44T. *c* 4-in., $90. *d* 88361-A. *e* 30-in. *f* F.o.b. factory. *g* Culvert pipe. Reinforced, ASTM C76-41. *h* Reinforced, ASTM C75-41. *i* Reinforced, ASTM C76-37. *j* Centrispun. No. standard specifications in Can. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13-40. *v* C.L.f.o.b. origin, freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60-1941 specifications used. *aa* *Extra strength ASTM C-200-50.* A standard strength. * 6", $1.67 per ft.; carlots, F.o.b. track Class 150. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL delivered, f.o.b. truck. *ee* 1% off for cash. *ff* 21.

*WROUGHT STEEL PIPE—(Full standard weight)

Mill	2½ & 3 in., Butt Weld† Black %	2½ & 3 in., Butt Weld† Galv. %	3½ to 6 in., Lap Weld† Black %	3½ to 6 in., Lap Weld† Galv. %	7 to 12 in. Black %	7 to 12 in. Galv. %	14 in. Black %	14 in. Galv. %
Lorain, Ohio	40.0	26.25	.....	.....	15.25*a*	.....	13.75*a*	.....
Albuquipe, Pa.	40.0	22.25	33.0*a*	.....	10.75*a*	.....	13.75*a*	.....
Sparrows Pt., Md.	38.0	21.25	28.0*a*	.....	.....	.....	.....	.....
Youngstown, O.	40.0	22.75	34.75*c*	16.0*c*	.....	.....	.....	.....
Indiana Harbor, Ind.	39.0	22.25	32.0*ab*	14.75*a*	.....	.....	.....	.....
Benwood, W. Va.	40.0	21.75	33.0*a*	13.75*a*	.....	.....	.....	.....
Wheatland, Pa.	40.0	20.75	34.75*c*	13.5*c*	.....	.....	.....	.....
Etna, Pa.	40.0*b*	19.25*b*	34.75*c*	13.5*c*	.....	.....	.....	.....
Fontana, Calif.	27.00	13.25*b*	19.0*ab*	4.75*ab*	.....	.....	.....	.....

† Threaded and coupled. *a* 3½ to 4 in. *b* Continuous weld. *c* 5 and 6 in.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09, 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 25.75, galv. + 57.0; 1¼ in. black, + 25.75, galv. + 56.5, 1½ in. black, + 19.25 galv. + 52.75; *Lap Weld* — 2½ in. to 3½ in. black + 26.25. galv. + 55 5; 4½ in. to 8 in. black + 23.0, galv. + 50.75. Freight rates to destination to be added to same delivered prices.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2. Fir small timbers and timbers are No. 1 Lengths up to 20 ft.
(Prices in italics)

	SHORT LEAF YELLOW PINE AND DOUGLAS FIR									LONG LEAF Y. P.		PLYWOOD	
										Merchantable grade up to 20 ft.		Rail freight increment (See note for base price)	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	⅜"	½"
Atlanta	† **$79.00**	**$82.50**	**$73.50**	**$76.00**	**$79.50**	**$83.00**	**$81.00**	....	....	....	....	$22.32	$27.24
Baltimore	* **94.00**	**98.00**	**75.00**	**75.00**	**75.00**	**81.00**	**95.00**	....	....	**$155.00**	**$155.00**	25.92*	31.60*
	103.00g	*103.00g*	*98.00g*	*98.00g*	*101.00g*	*101.00g*	*102.00*	*$115.00*	*$115.00*				
Birmingham	† **83.50**	**83.50**	**70.50**	**80.50**	**83.50**	**85.50**	**95.50**	....	....	**115.50**	**155.50**	21.78	26.58
	85.50	*85.50*	*80.50*	*79.50*	*78.50*	*78.50*	*85.50*	*85.50*	*85.50*	.....	.....		
Boston	**101/106a**	**104/110a**	**95/101***	**96/106***	**98/108a**	**100/112a**	....	....	....	.....	.....	25.92*	31.60*
	‡ *96.00**	*96.00*	*102/104*	*102/104*	*102/104*	*102/104*	*112.00*	*110/112*	*120.00*				
Chicago	****100.00**	**105.00**	**92.00**	**100.00**	**101/102**	**105/106**	**105.00**	....	....	**134.00**	**134.00**	22.45*	27.37*
	160.00	*101/102*	*103/104*	*107.00*	*108/109*	*108/109*	*110.00*	*110.00*	*110.00*				
Cincinnati	* **99.00**	**105.00**	**88.00**	**98.00**	**105.00**	**110.00**	**122.50**	....	....	**145.00**	**145.00**	25.00*	30.48*
	109.50	*109.50*	*111.50*	*110.00*	*111.50*	*109.50*	*138.50*	*138.50*	*138.50*	.....	.....		
Cleveland	** **96.00**	**99.00**	**86.00**	**92.00**	**98.00**	**101.00**	....	....	....	.....	.....	25.37*	30.93*
			103.00	*104.00*	*104.00*	*104.00*	*118.00*	*118.00*	*118.00*				
Dallas	k† **78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	....	....	....	**97.00**	**98.00**	18.72	22.80
Denver	* *Not in stock*		*128.00*	*128.00*	*126.00*	*130.00*	*135.00*	*136.00*	*136.00*	.....	.....	13.92	16.98
Detroit	‡ **110.00**	**115.00**	**101.00**	**110.00**	**114.00**	**118.00**	....	....	....	.....	.....	25.00*	30.48*
	101.50	*102.50*	*105.50*	*106.25*	*105.25*	*104.00*	*118.75*	*122.50*	*122.50*	.....	.....		
Kansas City	* **122.00**	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	....	....	....	.....	.....	16.56	20.16
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*147.50*	*147.50*	.....	.....		
Los Angeles	‡ *96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*114.00*	*124.00*	*114.00*	.....	.....	16.61*ab	20.25*ab
Minneapolis	# *130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*	.....	.....	19.89*	24.25*
Montreal	*ab85.00*	*90.00*	*85.00*	*90.00*	*100.00*	*100.00*	....	....	....	.....	.....	....	....
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*170.00*				
New Orleans	† **100.00**	**100.00**	**92.50**	**85.00**	**90.00**	**94.00**	**118.00**	....	....	**148.00**	**140.00**	18.72	22.80
	† *85.00*	*95.00*	*95.00*	*90.00*	*95.00*	*92.00*	*100.00*	*120.00*	*118.00*				
New York	‡ **109/114**	**112/117**	**110/115**	**115/120**	**120/125**	**125/130**	**150/160**	....	....	**210/240**	**210/240**	25.92*	31.60*
			Range from $115.00 to $120.00				*180/145*	*144/155*	*144/155*				
New York	** **96.00**	**99.00**	**82.00**	**95.00**	**97.00**	**100.00**	**125.00**	....	....	**190.00**	**190.00**	....	....
	98.00	*98.00*	*101.00*	*101.00*	*101.00*	*101.00*	*110.00*	*120.00*	*120.00*				
Philadelphia	‡		**Range from $114.00 to $127.00**				**114/127**	....	....	**200/210**	**200/210**	25.92*	31.60*
			Range from $125.00 to $150.00				*150/140*	*150.00*	*150.00*				
Pittsburgh	†		**Range from $90.00 to $95.00**			**110/120**	**110/120**	....	....	**110/120**	**115/125**	25.92*	31.60a
			Range from $110.00 to $120.00			*130/140*	*130/140*	*140/155*	*146/155*				
St. Louis	k**c112.00e**	**114.00e**	**101.00d**	**112.00d**	**115.00e**	**121.00e**	....	....	....	.....	.....	18.72	22.80
			115.00d	*121.00e*	*121.00e*	*121.00e*	*175.00e*	*185.00*	*185.00*				
San Francisco	A† *64.00*	*68.00*	*67.00*	*68.00*	*66.00*	*66.00*	*68.00*	*68.00*	*68.00*	.....	.....	12.22*a	14.91*a
Seattle	† *80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*85.00g*	*88.00g*	*85.00g*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *l* 8–10 ft. lengths. *n* ⅛ #1, ⅛ #2 & ⅛ #3.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ½", $179.00; on ¾", $202.00. Exterior plyform ⅜" $199.00, ½" $223.00. For other centers add rail freight increment from table on proper size Oiling and edge sealing charges included. *a* Lower rate by water shipment *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS — Discounts from jobbers list, Feb. 1, 1950a, Single or Double Thickness		EXPLOSIVES — Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
	A quality	B quality		
Atlanta	79%	80%	$0.2315	
Baltimore	76%d	78%d	.2315	
Birmingham	83%	83%	.1790	
Boston	79–10%	79–10%	.2315	
Chicago	78%	78%	.2315	
Cincinnati	78%	78%	.2315	
Cleveland	78–10–10%	78–10–10%	.2715	
Dallas	75%	75%	.2390	
Denver	81–5%	81–5%	.2365	
Detroit	78–10–10%	78–10–10%	.2315	
Kansas City	80–10%	80–10%	.2365	
Los Angeles	75%	80%	.2340	
Minneapolis	78–10%	78–10%	.2365	
Montreal	40–25%bc	40–10–5%b	21.60hi	
New Orleans	78%	77%	.2365	
New York	82–10%	82–10%	.3975g	
Philadelphia	78%	80%	.2315	
Pittsburgh	82%	82%	.2040	
St. Louis	80–10%	80–10%	.2365	
San Francisco	70%	70%	.2315	
Seattle	75%	78%	.2340	

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $23.35. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.179	$0.2115	$0.2315
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.184 – 1915	.2165–.224	.2365–.244
Rocky Mtn. States	.184 – 1965	.2165–.224	.2365–.249
Pacific N. W. States	.1815–.194	.214 – 2265	.234 – 2465
Pacific S. W. States	.179 – .1865	.2115–.214	.2315–.2365

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail — Pine*	By Rail — Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	..
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	....	....	....	....
	Pine	....	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	....	4.00a	....	5.00a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	3.04	....	3.85	....
	Red Oak	2.94	3.63a	3.67	4.72a
	Sap Pine or Cypress	3.44a	....	4.48	....
San Francisco	Douglas Fir	2.20e	3.25ef	2.92bf	4.30eaf
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *e* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.10
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

(Continued on page 77)

New Housing Project Starts Here!

aided by McKiernan-Terry PILE HAMMER

A McKiernan-Terry Double-Acting 9-B-3 Pile Hammer driving foundation piles for a new housing project. Coleman Brothers of Boston is the contractor.

1500 families will live on the foundations provided by these timber piles of which 10,000 had been driven when this photograph was made. Naturally, sinking the piles was one of the first steps in building the 27 units for the Columbia Circle Housing Project in South Boston, Massachusetts.

A powerful McKiernan-Terry Double-Acting 9-B-3 Hammer is driving the piles for the entire job. After the piles were driven, forms were placed around them and then poured. These caps form the foundations for the new buildings.

On job after job, McKiernan-Terry equipment keeps proving its pile-driving speed, economy and dependability. Investigate the wide-range McKiernan-Terry line which includes 16 sizes of pile hammers and 2 sizes of pile extractors. Write for Bulletin.

OTHER McKIERNAN-TERRY PRODUCTS

MEAD-MORRISON COAL AND ORE UNLOADERS AND BRIDGES

Available in a variety of designs and in capacities of 300 to 1500 tons per hour. Exceptional durability proven by installations in service for half a century. Simple controls afford convenient, comfortable and speedy operation.

GRAB BUCKETS

Range of types and sizes take bulk materials loads up to 25 tons. Ruggedness without excess weight.

HONING UP TO 42-IN. I.D. X 55-FT. LONG

Typical of the extensive facilities of McKiernan-Terry for unusual jobs.

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McKIERNAN-TERRY CORPORATION • MANUFACTURING ENGINEERS • 13 PARK ROW, NEW YORK 38, N. Y.

Plants: Harrison, N. J. and Dover, N. J.

MK330

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ONLY REX HAS THE ADJUSTABLE AIR PEELER!

Every self-priming, centrifugal pump must have an air peeler to remove air from the suction line and create the vacuum that draws water up to the impeller. Normal wear on the peeler and fast-moving impeller destroys the necessary close clearances between these parts . . . reducing both priming and pumping efficiency.

Here's where *Rex alone* can maintain original priming and pumping efficiency for life. A simple adjustment of the *exclusive Patented Adjustable Air Peeler* and you've restored its original close clearance with the impeller. Just a twist of the wrist and you've restored new pump efficiency . . . for today . . . and tomorrow.

Get all the details on this and other exclusive Rex features from your local Rex distributor or write to Chain Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT REX COMPANY ®

CONSTRUCTION MACHINERY

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE — PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00*k*	41.00*k*	30.00	21.00	.....
Birmingham	126.00*p*	142.00*p*	237.00*p*	284.00*p*	.....	.....	23.50*ff*	28.00*gg*	26.37	17.10	.....
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	34.50*p*	37.50*p*	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	23.00	25.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.50*j*	46.00*j*	26.37*j*	24.62*j*	.....
Cleveland	172.00**	183.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	35.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	35.25*cc*	33.60*cc*	32.00	30.00	.....
Kansas City	115.50	122.50	245.00	248.00	303.50	367.00	25.75	26.00	30.50	24.50	27.00
Los Angeles	r	r	r	r	r	r	24.50‖	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*wp*	.....	.....	32.00*vp*	36.00	38.00*bbe*	28.00*bbe*	40.00*bbde*
Montreal	165.00*aq*	181.00*au*	325.00*au*	.....	.....	.....	38.50	44.00	34.80	32.50	24.60*u*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	138.70*h*	147.90*h*	203.40*ch*	221.90*hn*	.....	.....	35.00	.....	36.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	.....	32.00	42.00	25.00	23.00	2.97
Pittsburgh	112.00	117.00	189.00	216.00	257.50	317.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	139.00*ee*	160.00*ee*	232.00*ee*	316.00*ee*	.....	.....	40.00*al*	36.00*s*	.85*aaa*	.65*aaa*	1.10*aaapes*
San Francisco	156.85*a*•	177.10*a*•	235.30*dda*•	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	175.00*ee*	190.00*ee*	.....	190.00*eew*	.....	.....	39.00*s*	49.00*s*	37.50*aAA*	1.45*ff*	3.90*mAA*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb: sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. ‖ F.o.b. yard. *j* Per 60 lb. sack, no iner., ton price no longer quoted. •• Warehouse delivery. • F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum*c	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$16.50	$28.275	$1.75	$2.70	$1.65	$2.06‡	$2.08‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	16.25	27.90	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	16.50	28.275	3.90	3.40	....	2.80	2.75	2.75	....	42.00*ss*
Boston	16.25	27.90	....	...	....	2.67*qq*	2.79*oq*	2.79*oq*	.42*g*	45.70*q*
Chicago	16.25	27.90	....	..	...	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	43.00‡
Cincinnati	16.25	27.90	....	....	....	2.50	2.50	2.50	.42*y*	45.56
Cleveland	16.25	27.90	2.39*pqq*	2.83*qq*	2.32*qq*	2.90*q*	2.90*o*	2.90*o*	.43*y*	37.00*hh*
Dallas	16.50	28.65	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	16.75	28.40	3.07	5.15	2.87	3.31*o*	2.40*o*	2.40*o*	.43*ff*	44.00
Detroit	16.25	27.90	2.35	3.40	2.50	2.75	2.50*fj*	2.50	.51	40.00
Kansas City	16.25	28.02	....	2.71*ys*	2.65	2.50	2.50*o*	2.50*o*	.313•	48.00
Los Angeles	16.25	28.15	3.30•	4.50•	4.20•	2.48•	1.66*e*•	*i*	.55•	*i*
Minneapolis	16.25	29.88/28.02	....	....	....	2.40*idd*	2.50*hidd*	2.50*hidd*	.36*idd*	40.70*v*
Montreal	.....	21.95	2.95*pfl*	4.05*sfl*	3.35*pfl*	4.85*t*	3.65*ff*	3.65*ff*	1.24*ht*	3.78*hi*
New York	16.25	27.90	....	....	....	2.50	2.50*o*	2.50*o*	.36*z*	40.70•
Philadelphia	16.25	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	16.25	27.90	2.65	2.85	3.15	2.69	2.93*o*	2.93*o*	.33	45.00
St. Louis	16.25	27.90	....	....	....	2.50	2.50*h*	2.50*h*	.33*y*	41.70
San Francisco	16.25	28.15	2.40	....	3.40	2.95	4.00*oa*	....	.49	.....
Seattle	16.25	28.40	2.96*m*	2.80*m*	....	3.58*mqcc*	3.05*hmcc*	....	.59*mcc*	52.00*jmc*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 5-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container; *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D*, Std Black. *E* Ready-mixed, *F*, Over 80% ferric oxide. • Aver. wt. approx. 500 lbs

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.90	$2.35	$2.60	$2.25	$2.75	$2.60	$2.90	$1.13	$1.13
Baltimore	3.20*d*	2.59	3.125*t*	2.85/3.00	2.75	2.875	2.875*t*	1.565*t*	1.565*t*
Birmingham	3.00	2.24	2.50	2.16	2.52	2.75	2.65	1.225	1.325
Boston	3.08•	2.625	2.82	3.00	3.05	3.00*d*	2.90*d*	1.90•	1.90•
Chicago	3.25*k*	3.00*m*	3.05*m*	2.80	3.43•	3.212*f*	3.09•	2.20*m*	2.20*m*
Cincinnati	3.12	2.625	2.815	2/2.50/3.05	2.90	2.90	2.90	1.92	1.92
Cleveland	3.195*t*	3.075*d*	3.075	3.075	3.075	3.075	3.07*C*	2.325	2.325
Dallas	3.4375	2.4875	2.625	2.50	3.437	2.75	2.7625	1.325	1.35
Denver	3.45	2. 625	2.50	2.63	3.30	2.90	2.82	1.725	1.725
Detroit	3.18*m*	2.93*m*	3.18*m*	2.90	3.31/*m*	3.05	3.00•	2.18*m*	2.18*m*
Kansas City	3.50	2.55	2.68	2.515/2.76	3.175	2.70	2.90	1.88	1.88
Los Angeles	3.175	2.57	2.925*b*	2.45	3.437	2.75	2.90	1.94	1.94
Minneapolis	3.05	2.55	2.72	2.50	2.90	2.71*n*	2.70	1.82	1.82
New Orleans	2.95	2.32	2.70*m*	2.50	2.625	2.65	2.65	1.30	1.30
New York	3.85*hr*	3.24*hB*	3.50*B*	3.50*B*	3.65*A*	3.795*as*	3.4455*bp*	2.05	2.05
Philadelphia	3.61*i*	2.90	3.32*i*	3.05/3.30	3.475*b*	3.45•	3.20•	1.75	2.05
Pittsburgh	3.40	3.00	2.875	3.00	3.15	3.00	3.00	1.90	1.90
St. Louis	3.55*c*	2.90*h*	2.90	2.95	3.175	3.09*e*	2.90*B*	1.97	1.97
San Francisco	3.40*hkx*	2. 705	2.85	2.56	3.125•	3.175	3.00	1.85	1.85
Seattle	3.30	2.58	2.78	2.71	3.15	2.80	2.75	2.18	2.14
Montreal*†	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

• Cost of living bonus now included in basic wage. ‡ Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

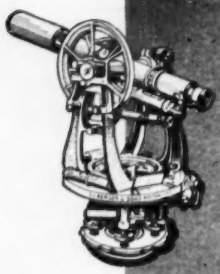
a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vac. stamp fund for bricklayers; 4% for electricians plus 7¼¢ WF. *d* Incl. 10¢ H&WF. *e* Incl. 6¢ H&WF. *f* Incl. 6% WF. *g* Incl. 11½¢ WF. *h* $2.45 homes & housing plus 5¢ VF. *i* Incl. 3½% WF and 15¢ PF. *j* Incl. 9¢/hr WF. *k* Incl. 7½¢/hr WF. *l* Incl. 4% VF. *m* Incl. 5¢/hr WF. *n* Incl. 6¢/hr WF. *o* Incl. 3% WF. *p* Incl. 3% WF, 3% PF. *q* Incl. 3% WF and 20¢ PF. *r* Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *s* Incl. 7½¢ H&WF. *t* Incl. 1½% WF. *u* Incl. 10¢ WF. *v* Negotiating. *w* Awnit. WSB appr. *x* Incl. 8% WF. *y* Incl. 7½¢ IF, 5¢ H&WF. *A* Incl. 10¢ WF, 10¢ PF & 10¢ VF. *B* Incl. 3% WF, 6 PH. *C* Incl. 7¢ IF. # Plus 5% WF, plus travel pay per day.

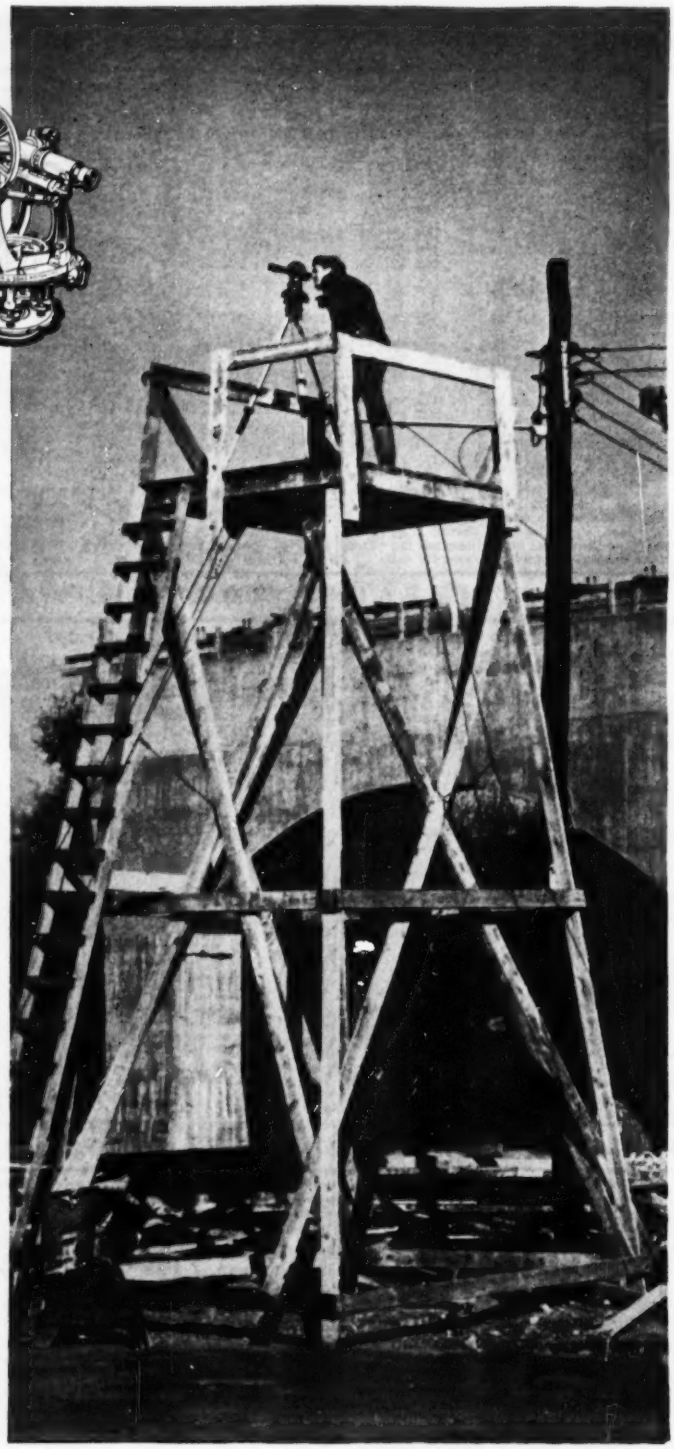
MEXICO CITY PRICES

In Pesos, F.o.b. City		Jan.'53	Feb.'53
Common Wages—Building (8 hr. day)	av. per hr.	1.88•	1.88•
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	1.06•	1.06•
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25•	2.25•
Bricklayers (8 hr. day)	av. per hr.	2.25•	2.25•
Struct. Iron Workers (8 hr. day)	av. per hr.	1.25•	1.25•
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1224.23	1224.23
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1386.77	1386.77
½" x 11 meters	per ton	1375.56	1375.56
⅝" x 11 meters	per ton	1364.35	1364.35
¾" x 11 meters	per ton	1353.14	1353.14
⅞" x 11 meters	per ton	1353.14	1353.14
1" x 11 meters	per ton	1353.14	1353.14
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	50.00	50.00
Rose Gravel	per tr. load	46.00	46.00
Cement, Std. Port. (Toltecs)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	750.00	750.00
1st Class Pine	per M ft.	1400.00	1350.00
2nd Class Pine	per M ft.	1200.00	1200.00

• Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers): $2.949 **ENR Common Average:** $1.821





A BERGER TRANSIT WON'T "WALK OFF"

You can't compensate for vibration when your transit won't settle down. It takes sturdy metals and sturdy construction to give an instrument the all-important rigidity required for consistent, accurate shots.

That's why Berger instruments are made of bronze—built to withstand greater wind pressure, with just the right proportion of weight to size to stay "put" under the most adverse surveying conditions. And the equal coefficient of expansion of Berger precisely fitted centers and spindles guards against fretting or binding under any variation of climatic condition. It flops over true . . . holds its adjustments.

Only high-priced virgin metals direct from the smelter are used for all Berger castings. Standards, centers, plates, telescope axis, clamps and all other parts are non-magnetic.

No other metals combine all these lasting characteristics. They add up to longer transit service life.

All-bronze construction is just one more of the many *extra* long-term values you can count on when you buy BERGER . . . as so many leading engineers do.

C. L. Berger & Sons, Inc., 37 Williams St., Boston 19, Mass. • 342 Madison Ave., New York 17, N.Y.

IF YOU'VE NEVER OWNED A BERGER, *you owe it to yourself to learn how accurate it really is . . . how little repair it requires . . . the lifetime of trouble-free service you can count on . . . how inexpensive a Berger Instrument is in the long run. Write for a copy of "Accuracy in Action."*

Berger Transit at work during construction of Forest Hills, Mass. Overpass and Traffic Interchange Project.

THE BEST IN ~~SIGHT~~ IS

BERGER

ENGINEERING AND SURVEYING INSTRUMENTS . . . SINCE 1871

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y
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NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Mass., Lynn**—B.A. 3/12—Dist. P. Wks., Office, First Naval Dist., 495 Summer St., Boston, rehabilitation of salt water sys. and timber pier, U. S. Naval Industrial Reserve Gear Plant, NOY 73847, Spec. 34879. Plans deposit $10.

† **N. H., Portsmouth**—TRANSMITTER and RECEIVER BLDGS.—B.A. About 3/30—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., 39x60 ft. transmitter bldg., 38x50 ft. receiver bldg., double bit. surf. tr. over gravel base for access roads, walks, parking areas, Portsmouth Air Force Base, Inv. ENG-19-016-53-66. Plans deposit $10. CD 12/27/51.

BIDS ASKED—BUILDINGS

R. I., Providence—Y.M.C.A. BUILDING—Bids Asked—Greater Providence Young Mens Christian Assn., 160 Broad St., Y.M.C.A. addn. for boys Bldg., Broad St. $400,000-$500,000. Bids Feb. 11 rejected. Creek, Kent, Mather, Cruise & Aldrich, 423 Industrial Trust Bldg., archts. CD 1/29.

SOON LETS CONTRACT—BUILDINGS

▲ **Mass., Boston**—PLANT—Westinghouse Electric Corp., Constr. Div., 401 Liberty Ave., Pittsburgh, Pa., soon lets contract plant addn., Damon St., Hyde Park. $1,250,000. Charles T. Main, Inc., 80 Federal St., Boston, engr. CD 2/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Eastern Roads Co., 103 Terrace St., Roxbury, Mass. CA $253,778. Contr. 195 furnishing, laying water pipe, Commonwealth Ave., Newton, BOSTON, MASS. State, Metropolitan Dist. Comn., Water Div., 20 Somerset St., Boston, Mass. CD 2/11, under LB.

† **Vara Constr. Inc.**, 718 Huntington Ave., Boston, Mass. LB $197,000, est. $200,000. control tower U. S. Naval Auxiliary Landing Field, NOY 7200, Spec. 32462, South Weymouth, WEYMOUTH, MASS. First Naval Dist., 495 Summer St., Boston, Mass. Bids Feb. 17. CD 1/16.

Tibbets Constr. Co., I Lawton St., Yonkers, N. Y. CA, $91,375, sanitary sewers, appurtenances Dean St. and Morris Causeway, NEW HAVEN, CONN. City, Hall of Records, New Haven, Conn. CD 1/5/45.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Stone & Webster Engineering Corp.**, 49 Federal St., Boston, Mass. CA, Kraft Paper MILL;

Beloit Iron Works, Rock River, Beloit, Wis. CA newsprint machines, East Millinocket, MILLINOCKET, ME. Great Northern Paper Co., 6 State St., Bangor, Me. Total cost $32,000,000. CD 2/6, under CA.

† **National Constr. Co.**, 767 E. Third St., South Boston, Mass. LB $487,960. DINING HALL and KITCHEN Bldg. 3 addn., alterations, Veterans Administration Hospital, BEDFORD, MASS. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Feb. 17. CD 12/31.

White Spot Gardens, Patrick Decillis, 42 Benton Rd., Somerville, Mass. Owner Builds. $700,000. 90 ranch type RESIDENCES, Cape Cod, WOBURN, MASS. CD 2/18.

▲ **E & F Constr. Co.**, 94 Wells St., Bridgeport, Conn., LB, $1,775,445, Conn. MR-40 HOUSING, Beardsley Terrace Extension, BRIDGEPORT, CONN. City Housing Auth., 252 Hallett St. Bids Feb. 13. CD 2/9.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Pa., Lewistown**—B.A. 3/25—Municipal Auth. Boro, Lewistown, Contrs. 2, 3, 4, 5 and 6, sewage treatment plant, $910,000, Plans deposit $50; Contr. 1, sanitary sewers, $400,000. Albright & Friel, Inc., 121 S. Broad St., Phila., engr. CD 1/14/47.

BIDS ASKED—BUILDINGS

† **Md., Fort George G. Meade**—POST TELEPHONE EXCHANGE—B.A. On Or About 3/20—U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore, Zone 3, post telephone exchange bldg., Eng. 18-020-53-52. Plans deposit $5. CD 11/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,

Poirier & McLane Corp., 33 W. 42 St., New York, N. Y., CA. $1,195,365, 17 land piers and foundations to carry Garden State Parkway bridge over Raritan River between Perth Amboy and Sayreville, Middlesex Co., Contract No. 14. Bids Jan. 29. CD 2/3, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Baltimore Contractors, Inc.**, 711 S. Central Ave., Baltimore, Md. CA. $3,329,300. Student UNION BLDG. and Physical EDUCATION BLDG., COLLEGE PARK, MD. State, University of Maryland, College Park, Md. CD 12/5, under LB.

▲ **Magazine Bros.**, 1129 Vermont Ave. N.W., Wash., D. C., CA. $1,500,000. 250 APARTMENT units Oxen Hill Development, UPPER MARLBORO, MD. Spring Garden Assn., 8007 Eastern Ave., Silver Spring, Md. Corning & Moore, 1726 M. St. N.W., Wash., D. C., archts. CD 4/25/52.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **W. Va., Wheeling**—B.A. 3/10—Dist. P. Wks. Office Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, 11, Va., replacing of water line at U. S. Naval Reserve Training Center, NOY 77062 (S. F.), Spec. 36533. Plans deposit $10.

La., Sulphur—SWIMMING POOLS—B.A. 3/16—Community Center & Playground Dist. No. 2 of Calcasieu Parish, 714 E. Napoleon St., 4 swimming pools, $350,000.

† **Ga., Albany**—RAILROAD SPUR, etc.—About 3/17—U. S. Eng., 200 East St. Julian St., Savannah, railroad spur to ammunition storage area, Turner Air Force Base, Serial No. ENG 09-133-53-60.

† **Fla., Cocoa**—BOMARC FACILITIES, etc.—B.A. On Or About 3/26—U. S. Eng., P. O. Box 4970, Jacksonville, BOMARC facilities, 2 guidance laboratories, Instrument maintenance laboratory, Air Force Missile Test Center, Patrick Air Force Base, Serial No. Eng 08-123-53-55. CD 4/4/51.

† **N. C., Camp Lejeune**—STEAM RETURN LINES—B.A. 3/27—P. Wks Office, Bldg. No. 1005, Marine Barracks, Camp Lejeune, replacing underground steam condensate return lines, U. S. Naval Hospital, Spec. 36957. Plans deposit $10.

BIDS ASKED—BUILDINGS

† **Va., Yorktown**—PAINT SHOP—B.A. 3/10—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, paint shop at U. S. Naval Schools (Mine Warfare), NOY 74923, Spec. 35828. Plans deposit $10.

Ky., Hopkinsville—SCHOOL—B.A. 3/11—Christian Co., Bd. Educ., Court House, elementary school, $350,000.

Ky., Prestonsburg—SCHOOL—B.A. 3/16—Floyd Co., Bd. Educ., Court House, high school, $400,000. Plans deposit $35. CD 1/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Dixie Constr. Co., 747 Wheaton St., Savannah, Ga., CA, $73,000, grading, paving streets in Daffin Heights Subdivision, SAVANNAH, GA. Cecil H. Mason, Jr., 7 Bull St., Savannah, Ga.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Holt Rast & Assocs., Empire Bldg., Birmingham, Ala., CA, $241,993, 2.118 lin. ft. 120 in. sewer lines BIRMINGHAM, ALA. Jefferson Co., Court House, Birmingham, Ala. Bids Feb. 17. CD 1/21.

† **Barksdale & LeBlanc**, 6425 Greenwell Springs Rd., Baton Rouge, La. CA $548,061, rehabilitation of Greenville Air Force Base, GREENVILLE, MISS. Headquarters, 3615th Pilot Training Wing, Craig Air Force Base, Selma, Ala. Bids Jan. 9. CD 12/31.

Wise Constr. Co., P. O. Box 6325, Parkway Station, Jackson, Miss. LB $195,099. Livestock exhibition bldgs. at State Fairgrounds, JACKSON, MISS. State Bldg. Comn., Woolfolk State Office Bldg., Jackson, Miss. Bids Feb. 16. CD 1/27.

M. & W. Constr. Co., Tupelo, Miss. LB $275,983, sewage treatment plant and exten. sewage collection sys. at Mississippi State College, STATE COLLEGE, MISS. State Bldg. Comn., Woolfolk State Office Bldg., Jackson, Miss. Bids Feb. 16. CD 1/28.

H. & H. Contg. Co., Bossier City, La. CA $61,583, grade, pave lawn of Confederate Memorial Hospital, SHREVEPORT, LA. State, Div. Admin., Baton Rouge, Baton Rouge, La. Bids Jan. 27.

City, City Hall, Chattanooga, Tenn. Owner Builds. $75,000. Resurf. 47 streets, CHATTANOOGA, TENN.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Young & Crary, Inc.**, 1312 62nd Ave., Wash. D. C., LB $94,364, laboratory maintenance SHOP, test laboratory SHOP and OFFICE BLDG., GATE HOUSE and steel SHED for test lab., ENG 49-080-53-56 (49), FORT BELVOIR, VA. U. S. Eng., 1st and Douglas Sts. N. W., Wash. 25, D. C. Bids Feb. 17. CD 1/26.

Holt Hosiery Mills, Inc., Glen Raven, N. C. Owner Builds. $85,000. MILL addn., GLEN RAVEN, N. C. CD 8/10/50.

Adamson Cadillac-Olds Co., Greensboro, N. C. Owner Builds. $85,000. AUTO SALES and SERVICE BLDG. addn. GREENSBORO, N. C.

G. L. Wilson Bldg. Co., Statesville, N. C. CA. $100,000. MILL addn., STATESVILLE, N. C. Paola Cotton Mills, Statesville, N. C.

Ira H. Hardin Co., 174 Mills St. N.W., Atlanta, Ga., CA, Est., $800,000, WAREHOUSE addn., ATLANTA, GA. Sears, Roebuck & Co., Ponce De Leon Ave. N. E., Atlanta, Ga. Bids Feb. 11. CD 2/17, under LB.

Joseph Lipsky, c/o Oboler & Clarke, engrs., 1101 Lincoln Rd., Miami Beach, Fla. Owner Builds, $100,000 PLANT, HIALEAH, FLA. CD 2/11.

Carl Baader, 673 E. 27 St., Hialeah, Fla., Owner Builds, CA, $305,000, 30 RESIDENCES, HIALEAH, FLA.

Dixie Homes, Inc., 3054 Lawn St., St. Petersburg, Fla., Owner Builds, $425,000, 42 RESIDENCES, ST. PETERSBURG, FLA.

Kent Properties Inc., P. O. Box 158, Miami Springs, Fla., CA, $325,000, HOTEL MIAMI SPRINGS, FLA. Bankers Realty Corp., c/o contractor.

L. A. Harvey, P. O. Box 4472, Fondren Station, Jackson, Miss. LB $339,648. Employees' DORMITORY at State Hospital, WHITFIELD, MISS. State Bldg. Comn., Woolfolk State Office Bldg., Jackson, Miss. Bids Feb. 16. CD 1/28.

A. & O. Builders, 3207½ Metairie Rd., New Orleans, La. LB $391,831. Proposal 3967 Lyons Memorial CENTER BLDG., NEW ORLEANS, LA. City, City Hall, New Orleans, La. Bids Feb. 16. CD 1/27.

Sorrell Bros., Sparta, Tenn., CA. $96,866. Spartan Mfg. Co. PLANT addn., SMITHVILLE, TENN. City, Smithville, Tenn. CD 7/24.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **L. E. Myers Co.**, 53 W. Jackson St., Chicago, Ill., CA. $67,500, new 12.47 kv. line from Circleville to Ashville, 12 mi., Pickaway Co.;

Owner Builds $96,150, clearing right-of-way from Clinton sub-station to Delaware for transmission line, Franklin and Delaware Counties; $260,800, install new switching gear at Pickaway generating station, Circleville, Pickaway Co.; $72,200, clearing right-of-way for transmission line from Wilson sub-station to Clinton sub-station, Franklin Co.; $250,800, enlargement and imprv. Wilson Road sub-station, Columbus, Franklin Co.; $101,900, enlargement and imprv. of Marion Road sub-station, Columbus, Franklin Co.; $230,000 Delaware 138 kv sub-station addn., $76,600 to be spent in 1953, Delaware, Delaware Co.; $91,600, sub-station addn., Gallipolis, Gallia Co.; $700,000, construct 138-69-13.2 kv sub-station near Jackson. $233,500 to be spent in 1953, Jackson Co.; $175,000, construct 69-13.2 kv sub-station Rock Springs, Meigs Co., $98,400 to be spent in 1953; $271,200, enlargement and imprv. Harris sub-station, Ross Co.; $227,500, completion of constr. work on 138-69-13.2 kv sub-station at Waverly Pike Co.; $62,500, new sub-station at West Union, Adams Co. OHIO. Grand

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2 Broadway, New York 4, N.Y. | 2123 S. 56th St., Omaha, Neb. | 8221 Atlantic Ave., P.O. Box 631, Bell, Cal.

total $2,607,150. Columbus & Southern Ohio Electric Co., 215 N. Front St., Columbus, O.

Loesch & Green Constr. Co., 4100 Brookoark Rd., Cleveland, O., CA. **$621,241**, est. $700,000. 52 ft. wide concrete paving Ridge Rd. between Brookpark and Memphis Rds. (8,500 ft.), removing old pavement, grading, sewer alterations, etc., Brooklyn and Cleveland, CLEVELAND, O. Cuyahoga Co., Court House, Cleveland 14, O. Albert S. Porter, Standard Bldg., Cleveland 13, O., engr. Bids Feb. 9, awarded Feb. 13.

Goodwin Constr. Co., Clarksville, Ind., CA. **$304,773** Div. A;

A. Arcari Co., Allen Park, Mich., CA, **$314,000**, Div. C, laterals;

E. Hughes Constr. Co., Jeffersonville, Ind., CA. **$398,152**, Divs. D and F connecting sewers, JEFFERSONVILLE, IND. Dpt. P. Wks., City Hall, Jeffersonville, Ind. Bids Jan. 8. CD 1/13, under LB.

Signal Hill Telecasting Corp., Bernard T. Wilson, pres., 10200 W. Main St., Belleville, Ill., Separate Contracts, **$331,000**, television station WTVI, Incl. 597 ft. antenna tower, studios and office bldg., station to operate on Channel 54, BELLEVILLE, ILL. John B. Heffelfinger, 815 E. 83 St., Kansas City, Mo., engr. CD 1/28.

Victor Constr. Co., Brentwood, Mo., CA, sewage disposal plant;

Illiana Constr. Co., Urbana, Ill., CA. sewers;

J. J. McFarlane Co., 210 Missouri Ave., Peoria, Ill., CA, manholes, GIBSON CITY, ILL. Total est. **$425,000**. City, City Hall, Gibson City, Ill. Bids Jan. 20. CD 1/8.

† **C. & C. Constr. Co., Inc.**, 2001 E. Pontiac St., Fort Wayne, Ind., CA. **$391,010**, readiness hangar Truax Air Force Base, Eng. 47-013-53-33, MADISON, WIS. U. S. Eng., 428 Federal Bldg., Milwaukee, 1, Wis. Bids Feb. 13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ebasco Services, Inc.**, 2 Rector St., New York, N. Y. CA. **$5,015,000**, complete installation of a fourth GENERATOR unit of 60,000 kw.; CA. **$328,900**, complete installation of 7,000-ft. coal conveyor belt; **Owner Builds. $378,750**, 138 kv. sub-station addn., foregoing at E. M. Poston Plant, Nelsonville. ATHENS, O. Grand total $5,722,650. Columbus & Southern Ohio Electric Co., 215 W. Front St., Columbus, O. CD 3/22/51.

▲ **Chipley Realty Co.**, Beggs Bldg., 21 E. State St., Columbus, O. Owner Builds. **$4,000,000.** 333 HOMES, In River Ridge Addn., COLUMBUS, O.

Max Irmscher, 113 Ft. Wayne Bank, Fort Wayne, Ind., CA. **$336,678**, general contract 3 story NURSES RESIDENCES and 2 story attached EDUCATIONAL BLDG., School of Nursing Parkview Memorial Hospital, FORT WAYNE, IND. Bd. Directors Parkview Memorial Hospital, E. State Blvd. and Randlaia Dr., Fort Wayne, Ind. A. M. Strauss, Inc., Strauss Bldg., Fort Wayne, Ind., archt. Awarded Feb. 23.

▲ **Gustav Hirsch Organization, Inc.**, 1347 W. Fifth Ave., Columbus, O., CA. **$5,000,000**, electrical work Tanners Creek POWER PLANT, LAWRENCEBURG, IND. Indiana-Michigan Electric Co., 2101 Spy Run Ave., Fort Wayne, Ind. CD 1/20.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Colo., Denver**—STORAGE FACILITIES—B.A. 3/17—U. S. Eng., 1709 Jackson St., Omaha, Neb. ammunition storage facilities, Lowry Air Force Base, Inv. 25-066-53-151. CD 8/17/51.

Mo., St. Louis—B.A. 3/24—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, wid'n., paving Jamieson Ave., Pernod Ave. to Arsenal St., $228,000; paving former central parkway strips Kingshighway Blvd., Euclid Ave. to W. Pine Blvd., $48,000. Guy Brown, 325 City Hall, Zone 3, ch. engr. CD 2/20/52.

▲ **Mo., St. Louis**—TERMINAL—B.A. 3/24—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, airport terminal consisting of 3 levels with room of parabolic arches and finger ramps exten. to airplane parking aprons at Lambert-St. Louis Municipal Airport, Bridgeton, $3,300,000. Hellmuth, Yamasaki & Leinweber, Inc., International Office Bldg., 722 Chestnut St., Zone 1, archt. Wm. C. E. Becker, Ambassador Bldg., Zone 1, superv. engr., W. R. Crecelius, 301 City Hall, ch. engr. CD 6/2/52.

BIDS ASKED—BUILDINGS

† **Ia., Des Moines**—BUILDING—B.A. 9/11—Ninth Naval Dist., Great Lakes Naval Training Center, Great Lakes, Ill., repairs, alterations Building No. 47, Fort Des Moines, Spec. 35926.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Orfei & Mariani**, 1156 Homer St., St. Paul, Minn. CA $775,948, Proj. 174;

Phelps-Drake Co., 1415 SE 8 St., Minneapolis, Minn. CA **$603,740**, Proj. 175, joint sanitary sewer, EDINA AND RICHFIELD (Minneapolis P.O.), MINN. Village of Edina, E. Bank, clk., Edina, and Village of Richfield, P. H. Haugen, clk., Richfield, Minn. CD 2/6, under LB.

† **W. A. Klinger Constr. Co.**, 201 Benson Bldg., Sioux City, Ia., LB, **$157,609**, readiness bldg., Sioux City Municipal Airport, Inv. 25-066-53-125, SIOUX CITY,

(Continued on page 83)

MAKING WASTE HEAT "Pay off"

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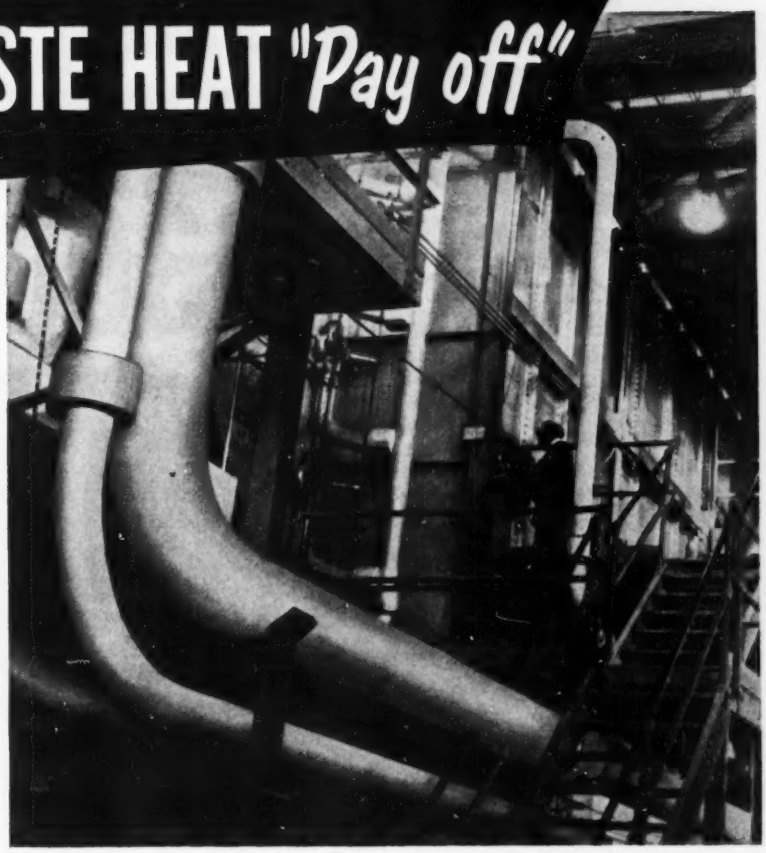

One of the East's large cement companies gets all the electric power it needs for plant operation by utilizing the waste heat from its cement kilns. This heat is first directed to a boiler which produces a continuous supply of 700°F. steam. This, in turn, is piped to a power-generating turbine—and that's where K&M insulations come in!

So that heat loss is held to a minimum, two effective K&M insulations have been used in combination on the main steam header: a 1½" layer of "Featherweight" 85% Magnesia over a 1½" layer of Hy-Temp insulation. For two smaller boiler-feed water lines, a 1½" layer of "Featherweight" 85% Magnesia is sufficient. All pipes have been finished with a canvas jacket and painted.

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T-35 SHOVEL gives you 90 cu. yds. per hr. production with automatic cable crowd. Saves time working roadside pits, handling road repairs, general clean-up.

(Continued from page 80)

IA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Feb. 12. CD 1/21.

MISSOURI—State Hy. Comn., Jefferson City,

St. Louis County Bridge & Grading Co., 7929 Alabama St., St. Louis, Mo. CA $529,762, b. conc. surf. 2.413 mi. St. Louis Co. Bids Jan. 30, awarded Feb. 18. CD 2/6, under LB.

City, City Hall, Main and Harwood Sts., Dallas, Tex. rejected bids Jan. 13, drilling and developing water supply wells, Well No. 1, $70,000; Well No. 2, $90,000; Well No. 3, $65,000; Well No. 4, $100,000; Well No. 5, $85,000; Well No. 6, $75,000, DALLAS, TEX. Project abandoned. J. G. Rollins, Ch. P. Wks. Engr.

City, City Hall, Main and Harwood Sts., Dallas, Tex. Own Forces. $100,000, some general water main exten., DALLAS, TEX. Lockwood & Andrews, Union Natl. Bank Bldg. Houston, consult. engrs. J. T. Conroy, P. Wks. Engr. CD 11/21/51.

Edinburg Industries, Inc., Edinburg, Tex. Own Forces. $60,000, storm and sanitary sewers, EDINBURG, TEX.

Edinburg Industries, Inc., Edinburg, Tex. Own Forces $45,000, industrial site dirt and earthwork, EDINBURG, TEX.

Edgewood Corp., c/o Sterling Hogan, Sr., 3965 Del Monte St., Houston, Tex. Purchase and Hire. $40,000. water lines, facilities, HOUSTON, TEX.

Edgewood Corp., c/o Sterling Hogan, Sr., 3965 Del Monte St., Houston, Tex., Purchase and Hire. $60,000, storm sewers; $65,000, sanitary sewers, HOUSTON, TEX. CD 1/21.

Edgewood Corp., c/o Sterling Hogan, Sr., 3965 Del Monte St., Houston, Tex., Purchase and Hire. $70,000, street constr. and asph. paving, HOUSTON, TEX.

▲ **R. H. Fulton & Co.**, Lubbock, Tex., CA, $3,000,000 91 mi. oil pipe line to serve the Big Horn Basin oil area and will connect with the terminal at point 17 mi. west of Worland, WYOMING. Platte Pipe Line Co., Casper, Wyo.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,

James B. Kenney, Inc., 3233 Osage St., Denver, Colo., LB, $256,606, est. $230,493, bridge and approaches Franklin St. and Valley Hy., Colo. Projs. UI-002-2(26) Unit 2; bridge and approaches at Downing St. and Valley Hy., UI-002-2 (26) Unit 3, Denver, Colo. Bids Feb. 17. CD 2/12.

BUILDINGS

LOW BIDS AND CONTRACTS

H. N. Leighton Co., 708 S. 7 St., Minneapolis, Minn. CA $250,000. general contract 3 story, bsmnt., 80x160 ft. WAREHOUSE addn. at site. MINNEAPOLIS, MINN. G. A. Clark & Son, G. R. Clark, pres., 901 N. Third St., Minneapolis, Minn. W. H. Wheeler, Metropolitan Bldg., Minneapolis, Minn., engr.

John B. Gutmann Constr. Co., 1301 S. Vandeventer Ave., St. Louis 10, Mo. CA Est. $300,000. general contract 2 story, ground floor, brick, concrete parochial SCHOOL and sisters' CONVENT, GARDENVILLE (ST. LOUIS 23 P. O.) MO. St. George's Catholic Parish, Very Rev. Mark S. Ebner, pastor 4980 Heege Rd., St. Louis 23, Mo. Bids Feb. 3.CD 1/27.

Syndicate, c/o Albert Fein, Kingsway Hotel, 108 N. Kingshighway, St. Louis, Mo. Separate Contracts. $400,000. remodeling HOTEL, ST. LOUIS, MO.

Airconditioned Homes, Inc., 2509 W. Berry St., Fort Worth, Tex. Own Forces. $325,000, 20 DWELLINGS, FORT WORTH, TEX. CD 1/21.

Dalworth Building Co., Grand Prairie, Tex., Owner Builds. $300,000. 30 frame DWELLINGS, GRAND PRAIRIE, TEX.

E. J. Burke & Sons, 1100 Goliad Rd., San Antonio, Tex. CA. $360,000. 45 DWELLINGS, SAN ANTONIO, TEX. Fidelity Defense Housing, 1100 Goliad Rd., San Antonio, Tex. CD 1/22.

Spiegelberg Lumber Co., Laramie, Wyo., LB, $353,942 general contract 1 and part 2 story brick steel county high SCHOOL, LUSK, WYO. Niobrara Consolidated School Distr., Lusk, Wyo. Bids Feb. 12. CD 1/14.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Calif., Travis Air Force Base**—CHAPEL and SERVICE CLUB—B.A. 3/10—U. S. Eng., Wright Bldg., Sacramento, air force chapel and service club, Spec. 1756. Cancelled bids to have been opened Mar. 10, air force chapel, Spec. 1773. CD 2/19.

SOON LETS CONTRACT—BUILDINGS

Calif., Sunnyvale—PROCESSING BLDG—Libby-McNeill & Libby, U. S. Yards, Chicago, Ill., soon lets contract processing bldg., Ellison & King, 500 Sansome St., San Francisco, engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **N. J. Olsen**, Logan, Utah, LB, $223,300, est. $246,730 base operations bldg. and tower, Mountain Home Air Force Base, ENG 45-165-53-32, MOUNTAIN HOME, IDAHO. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Feb. 17. CD 2/10.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

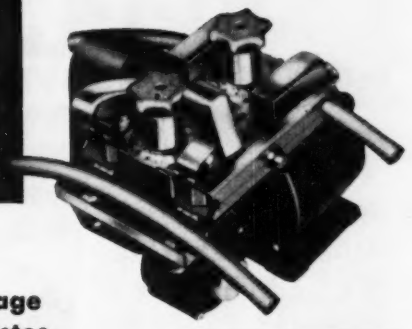
H. J. Hagen, Globe, Ariz., LB, $226,257. Burro Creek bridge, 5 span steel girder, concrete deck, Mohave Co.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

Larsen Contg. Co., Box 1790, Phoenix, Ariz. LB, $178,655, select material aggregate base, bit. plant mix 4 mi. Indian School Road Extension, Maricopa Co. Bids Jan 26;

Western Constructors, Inc., Box 1604, Phoenix, Ariz., LB, $281,726, select material agg. base, bit. plant mix 4 mi. Tucson-Nogales Road, Santa Cruz Co.;

OMEGA SAMPLER



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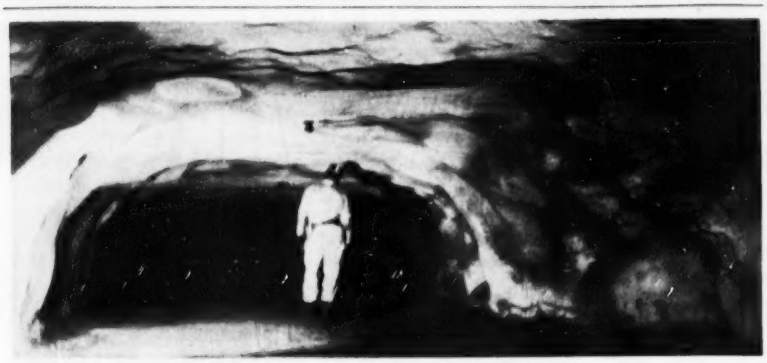

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Tiffany Constr. Co., Box 6364, Phoenix, Ariz., LB **$151,115**, select material agg. base bit. plant mix 3½ mi. Mesa-Superior Highway, US 60-70-89-89, Maricopa Co.;

W. J. Henson, Box 471, Prescott, Ariz., LB, **$195,721**, grading, draining, new alignment 5¾ mi. Wickenburg-Kingman Hy., Yavapai Co.;

Arizona Sand & Rock, Box 596, Phoenix, Ariz., LB, **$479,936**, select material aggregate base, bit. surf. 4.7 mi. Globe-Show Low Hy., Apache Co.;

Wallace & Wallace, Box 470, Phoenix, Ariz., LB **$351,592**, grading, draining, over new alignment 4 mi. Tucson-Benson Highway, Pima Co. CD 6/12.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles.

Ralph B. Slaughter, Box 228, Julian, Calif., LB, **$234,368**, wid'n. 6.1 mi. hy. between Vista and Escondido, San Diego Co. Bids Feb. 13. CD 1/22.

† **Midland Constructors, Inc.**, 3332 E. Florence Ave., Huntington, Calif., LB, **$76,651**, power line extension at Sierra Ordnance Depot, Spec. 1715, HERLONG, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Feb. 13. CD 1/22.

BUILDINGS
LOW BIDS AND CONTRACTS

▲† **Utah Constr. Co.**, 57 E. 4 St. S., Salt Lake City, Utah, LB, **$4,583,028**, ADMINISTRATION and SERVICE BLDGS., ASSEMBLY and MAINTENANCE BLDGS., WAREHOUSE, pumphouse utilities, etc., National Reactor Testing Station, ARCO, IDAHO. Idaho Operations Office, Atomic Energy Comn., 550 2 St., Idaho Falls, Idaho. Bids Feb. 17. CD 1/28.

CANADA

BUILDINGS
LOW BIDS AND CONTRACTS

G. H. Wheaton, 1217 Wharf St., Victoria, B. C., CA. **$897,538.** high SCHOOL, VICTORIA, B. C., School District No. 61, Victoria, B. C. Bids Feb. 4. CD 2/11, under LB.

ALASKA

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **P. L. Crooks & Co. Inc. & Robert J. Johnson & Assoc., Inc.**, Lewis Bldg., Portland, Ore. CA. **$4,900,000.** 400 DWELLINGS, near ANCHORAGE, ALASKA. Anchor Park, Inc., c/o contractors.

LATIN AMERICA

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex., U. S. A. CA. **$11,500,000**, pressure maintenance plant, near Maracaibo, VENEZUELA. Creole Petroleum Corp., Maracaibo, Venezuela. CD 7/19/46.

Proposed Projects

WATER SUPPLY

Ill., Lincolnwood—Village, Village Hall, water reservoir, pumping station sewers, **$725,000.** Emmett Kennedy & Co., 30 N. La Salle St., Chicago, consult. engrs.

▲ **Alaska, Ketchikan**—City, City Hall, extend water sys. **$1,000,000.** L. Hubbard, city engr. CD 10/30/51.

SEWERS, WASTE DISPOSAL

Mass., Newton—City, Dpt. P. Wks., W. S. Pratt, dir., City Hall, incinerator, **$950,000.**

▲ **Mich., Pontiac**—Oakland Co., Ralph A. Main, drain comr., 1 Lafayette St., drainage proj., propose 12 town drain constr., Ferndale, Oak Park, Royal Oak, Birmingham, Clawson, Pleasant Ridge, Huntington Woods, Berkley, Southfield and Troy, incl. relief sewers to drain into Red Run Drain at Twelve Mile and Campbell Rds. **$12,500,000.**

▲ **W. Va., South Charleston**—City, City Hall, sanitary sewerage imprvs. **$4,000,000.** Howard K. Bell Co., 553 S. Lime St., Lexington, Ky., consult. engr. CD 3/1/45.

BRIDGES

▲ **WASHINGTON**—State Hy. Dpt., Olympia, **Chelan and Okanogan Counties**—bridge over Columbia River at Chelan Falls, **$1,200,000.** W. A. Bugge, state hy. dir.

STREETS AND ROADS

▲ **Ga., Savannah**—City, City Hall, street and sidewalks paving, **$3,000,000.** CD 2/11/49.

▲ **Miss., Natchez**—City, street paving. **$2,000,000.**

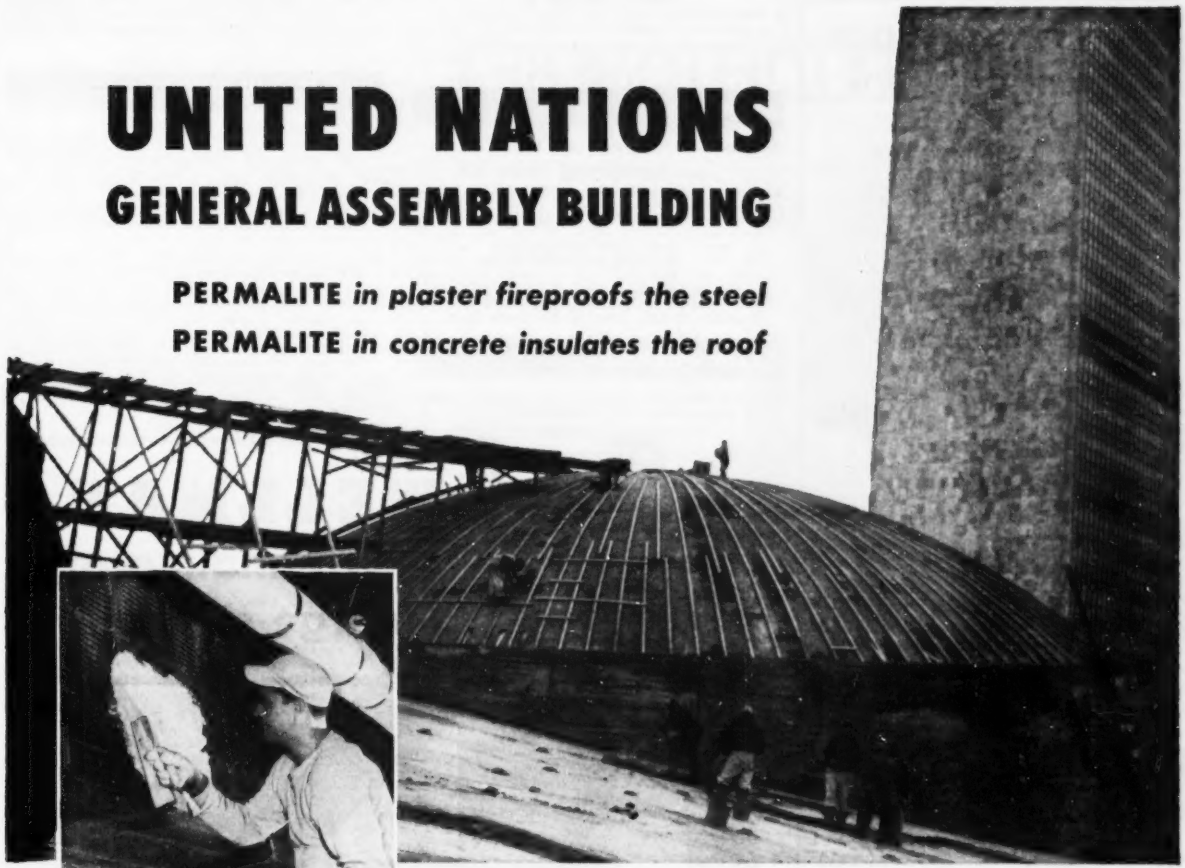
▲ **VIRGINIA**—Virginia Interstate Turnpike Corp., c/o J. J. Wicker, Jr., Mutual Bldg., Richmond, 200 mi. Virginia Turnpike from Wash. D. C. to North Carolina State line in Eastern Virginia. **$200,000,000.** Capitol Eng. Corp., consult. engrs. Dillsburg, Pa., made report.

(Continued on page 86)

UNITED NATIONS
GENERAL ASSEMBLY BUILDING

PERMALITE *in plaster fireproofs the steel*

PERMALITE *in concrete insulates the roof*



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McClure & Erickson Corp., Los Angeles, California

Perma-Rock Products, Inc., Baltimore 30, Maryland
•
West Indies Perlite Mfg. Co., Inc., Havana, Cuba

The Whittemore Company, Roslindale 31, Mass.
•
Virginia Perlite Corp., Hopewell, Virginia

(Continued from page 84)

▲ **WASHINGTON**—State Hy. Comn., Olympia, King and Kittitas Counties—widening Highway 2 to 4 lanes from North Bend to Ellensburg, $16,500,000; Pierce Co.—widening Hy. 5, Tacoma to Puyallup, $325,000. W. A. Bugge, state hy. dir.

AIRPORTS

Idaho, Boise—HANGAR, etc.—Idaho National Guard N.E. of city, Boise, hangar, crash vehicle station and other bldgs., Gowen Field. $875,000.

▲† **Tex., Amarillo**—ENGINE TEST CELLS, etc.—U. S. Eng., Box 61, Tulsa 2, Okla., Lot No. 1, engine test cells, grading, borrow excav., 12 prs. engine test cells, prs. engine jet test cells, exterior gas, sewer, water, and electric distr. sys., fuel distr. sys., roads, parking areas, fencing, railway, siding, etc. $500,000; Lot 2, steam distr. sys., $65,000; Lot 3, water distr. sys., $35,000; Lot 4, steam heating plant, drainage, $90,000, Inv. No. Eng-34-066-53-101, Amarillo Air Force Base.

LATIN AMERICA

▲ **Mexico, Monterrey**—Srta. de Defensa Nacional, Mexico City, plans military city. $1,000,000.

▲ **Mexico, Villa Cardel**—Srta. de Recursos Hidraulicos, P. de la Reforma, 69, Mexico City, plans building secondary distr. canals for La Antigua irrigation dam. $1,150,000.

PUBLIC BUILDINGS

Ala., Clanton—COURT HOUSE, etc.—Chilton Co. plans by Pearson, Tittle & Narrows, First National Bank Bldg., Montgomery, court house-jail. $500,000.

Ala. Montgomery—HEALTH CENTER—Montgomery Co., Court House, health center, $500,000.

▲ **Calif., Alhambra**—SCHOOLS—Alhambra School Dist., Alhambra, voted $1,640,000 bonds, Northrup School buildings. CD 6/13.

Calif., Daly City—SCHOOLS—City, City Hall, voted $840,000 bonds, Jefferson Elementary School.

Conn., East Hartford—SCHOOL—Town Bd. Educ., 200 Burnside Ave., plans by Chas. H. Bewer, Jr., 15 Lewis St., Hartford, 2 story, North Side wing and 1 story, South West Side wing, brick, steel, concrete Silver Lane School addns., Mercer Ave. $800,000. Henri B. Van Zelm, 197 Asylum St., Hartford, consult. engr.

Calif., Tulare—SCHOOL—Tulare Union High School Dist., 755 E. Tulare St., voted $675,000 bonds school addn. CD 1/22.

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▲ **Conn., East Windsor**—SCHOOL—Town, M. H. Wood-Malmfeldt & Assocs., 36 Pearl St., Hartford, brick, steel, concrete New High School, Alfred Potwin Property, Town St., Route 5. $1,000,000.

▲ **Conn., Groton**—SCHOOL—Town, Roy S. Haggard, distr. Selectmen, Town Hall, plans by Warren H. Ashley, 29 Bishop Rd., West Hartford, Senior High School. $1,080,000. CD 1/29.

▲ **Conn., Newtown**—ADMISSIONS, etc.—State, R. G. Macy, P. Wks. Comr., State Office Bldg., Hartford, plans by Westcott & Mapes, 109 Church St., New Haven, 200,000 sq. ft., brick, concrete hospital admissions and treatment bldgs., Fairfield State Hospital, Proj. B/A-A-82, $5,000,000. Jaros-Baum & Bolles, 415 Lexington Ave., New York, N. Y., consult. engrs. CD 12/14/51.

▲ **D. C., Wash.**—HEALTH CENTERS—Dist. of Columbia Govt., District Bldg., 4 health centers, Anacostia, Kenilworth, Northeast Washington and Northwest Washington, $2,350,000.

▲ **D. C., Wash.**—PSYCHIATRIC UNIT, etc.—District of Columbia Govt., District Bldg., 250-bed psychiatric unit, $2,500,000; 300-bed semi-ambulatory tuberculosis patients unit, $3,000,000; obstetric and gnecology unit, $3,000,000; expansion of operating facilities $800,000; 200-interns and staff members living quarters, $900,000; general utility bldg., $350,000; conversion of present psychiatric unit to rehabilitation and convalescent center, $500,000; residences, $280,000; administration bldg. and out-patient clinic, $3,500,000, at Gallinger Hospital.

▲ **Ga., Savannah**—HOUSING—Savannah Housing Auth., Realty Bldg., plans by Levy & Kiley, Realty Bldg., 300 Negro Housing Units. $3,000,000.

Ill., Wilmington — Lorenzo — SCHOOL — School District 209, Wilmington-Lorenzo, plans by Perkins & Will, 309 Jackson Blvd., Chicago, Zone 6, high school. $600,000.

Ind., Auburn—SCHOOL—Bd. School Trustees, Auburn, Junior High School, $500,000.

Ky., Brewers and Hardin—SCHOOL—Marshall County, Fiscal Court, Benton, school serving Brewers and Hardin. $600,000.

▲ **Mass., Holyoke**—HOUSING—Holyoke Housing Auth., C. J. Broderer, exec. dir., Jackson Parkway, plans by Oswald C. Vachon, 23 Dillon Ave., housing. $1,000,000. CD 1/6/51.

Mass., Watertown—SCHOOL—Town, School Bldg. Comn., Francis A. Kelly, chn., plans by Collins Willis & Beckonert, 20 Newbury St., Boston, 1 story, brick cinder block elementary school, Hamilton and Copland Sts. $595,000. Maurice A. Reidy, 101 Tremont St., Boston, struct. engr. Hayden, Harding & Buchanan, 810 Park Square Bldg., Boston, mech. engrs. CD 2/3.

Mich., Birmingham—SCHOOL—City, Bd. Educ., Birmingham, plans by Frederick D. Mason, 2908 N. Woodward St., Royal Oak, brick, steel Barnum Junior High School addn., alterations. $500,000.

▲ **Mich., Detroit**—GARAGE—City, City Council, Guardian Bldg., will not construct 3 level concrete underground garage under Grand Circus Park. $6,000,000. Project abandoned. Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, consult. engr. CD 12/4.

▲ **Mich., Grosse Pointe**—SCHOOL, GYMNASIUM AND AUDITORIUM—Bd. Educ., S. T. Johnson, secy., 389 St. Clair St., Grosse Pointe, bond election Apr. 21, brick, steel, concrete gymnasium and auditorium, Grosse Pointe Blvd., Grosse Pointe, $1,000,000; 2 story, bsmnt., brick, steel elementary school, Roslyn Rd., Grosse Pointe Shores, $750,000.

Mich., Pontiac—CITY HALL—City, Ada R. Evans, clk., plans by Leo J. Heenan, 15 Carlton Court, Pontiac, 3 story, bsmnt., 78x205 ft., brick, steel, stone city hall, E. Pike St. $900,000. CD 2/6.

Minn., Ortonville—SCHOOL—Bd. Educ., Mrs. T. Stelner, clk., voted $550,000 bonds Feb. 10, school. F. W. Jackson & Assoc., St. Cloud, archts. CD 12/31/51.

Minn., St. Paul—SCHOOL—Bd. Educ., F. E. Conner, supt., R. Hammel, school bd. archt., 615 Court House, plans by M. & G. Buetow, 1931 University Ave., 2 story West Side Grade School between Winona and Curtice Sts. and between Woodbury St. and Brown Ave., $550,000. CD 10/30/50.

Mo., Affton (St. Louis 23 P.O.)—SCHOOL, etc.—Affton School Dist. Bd. Educ., Charles J. Mesnier, supt. Schools, 8520 MacKenzie Rd., Zone 23, voted $800,000 bonds high school on 18 acre tract about 8600 MacKenzie Rd. and completion of Heege School addn. Syl G. Schmidt & Assoc.; Railway Exchange Bldg., 611 Olive St., St. Louis, Zone 1, archts. CD 1/30.

▲ **Mo., Higginsville**—DORMITORIES, DINING ROOM, etc.—Missouri State School for the Feeble-Minded & Epileptic, Marshall, 2 dormitories, dining room, kitchen laundry, rehabilitation of old Confederate Home bldgs. on 270 acre tract for use as hospital for epileptics, $1,410,000.

Mo., Normandy (St. Louis 21 P.O.)—SCHOOL—Normandy Consolidated School Dist., Bd. Educ., W. E. Barnes, supt. Schools, 7837 Natural Bridge Rd., Zone 21, voted $600,000 bonds Junior High School addn. Kenneth E. Wischmeyer, 911 Locust St., St. Louis, Zone 1, archt. CD 2/2.

Neb., Princeton—HIGH SCHOOL—Consolidated School Dist., Princeton, high school. $500,000.

▲ **N. J., Trenton**—STATE PRISON—N. J. Dpt. Purchase & Property, State House, Trenton, state prison. $4,800,000.

▲ **N. J., Trenton**—HOUSING—N. J. Div. Purchase & Property, State House, employee housing, Trenton State Hospital. $3,270,000. CD 1/8.

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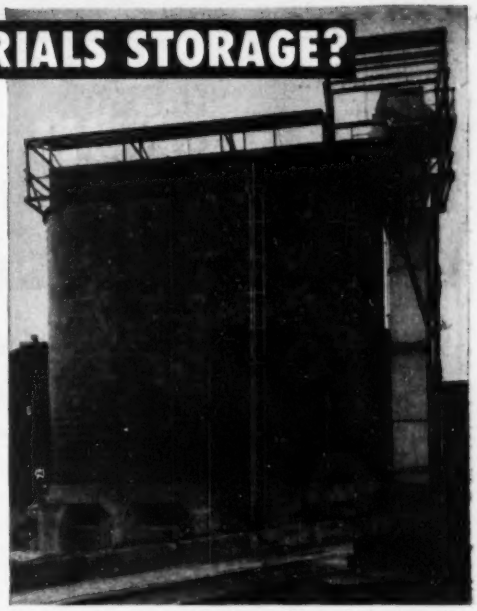

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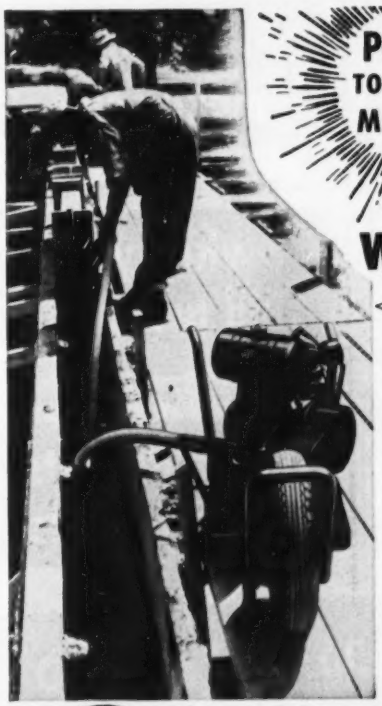

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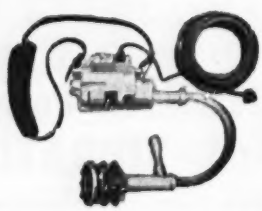

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Pa., Donora—SCHOOLS—School Dist. of Carroll Twp., Donora, plans by C. C. & E. E. Compton, 419 Thompson St., 2 story, bsmnt., brick, block, steel Junior High School and grade school, near here. $750,000.

Pa., Larchmont—HIGH SCHOOL—Marple-Newtown Joint High School Bd., Larchmont, plans by The Ballinger Co., engr.-archt., 121 N. Broad St., Phila., high school. $750,000. CD 1/6.

▲ Pa., Phila.—HOUSING—Phila. Housing Auth., 42 S. 15 St., Low Rent Housing development, Whitehall Proj. $2,600,000. CD 9/12/49.

R. I., Kingston—RANGER HALL—State, State College, Kingston, plans by Linwood A. Gardiner, 170 Westminster St., Providence, Ranger Hall addn., alterations. $600,000. CD 2/23/51.

▲ S. C., Camden—HOSPITAL—Kershaw Co., Camden plans by Samuel Hannaford & Son, Dixie Terminal Bldg., Cincinnati, O., hospital, $2,500,000. CD 11/12.

S. C., Charleston—HOSPITAL—Charleston Co., Court House, Negro Hospital. $750,000.

S. C., Winnsboro—HIGH SCHOOL—Fairfield County Bd. Educ. Winnsboro, Senior High School. $500,000.

Tex., Bellaire—HIGH SCHOOL—Bellaire Independent School Dist., Bellaire, plans by Golemon & Rolfe, 915 Woodrow St., Houston, multi-storied masonry Senior High School. $650,000.

▲ Tex., Houston—SCHOOLS—Houston Independent School Dist., 1600 Washington St., plans by Finger & Rustay, 711 C & L Bldg., Eastside Elementary School, MacGregor-Terrace, Southern Village, $650,000; plans by Harvin C. Moore, 2008 W. Alabama St., Elementary School, Stella Link Rd., $875,000; plans by George & Abel B. Pierce, 4511 Kyle St., "Durkee" Elementary School, Little York and Ward Rds., $600,000; plans by Wilson, Morris & Crain, 3330 Graustark St., Elementary School, Avery and Nunn Sts., $550,000; plans by Lloyd & Morgan, 4605 Montrose St., Senior High School, Tidwell road area, $975,000; plans by C. H. Kiefner, 3501 Buffalo Dr., Junior High School, Yellowstone and Scott Sts., $750,000; plans by Golemon & Rolfe, 915 Woodrow St., Senior High School, at Bellaire, $1,000,000. Milton McGinty, co-ord. archt. for Bd. on first 6 projects. CD 2/3.

▲ Tex., Houston—PETROLEUM ENGINEERING—University of Houston, 3801 Cullen Blvd., petroleum engineering. $3,500,000. CD 3/23/45.

▲† Alaska, College—FOOD SERVICE—Alaska P. Wks. Dpt. Interior, Juneau, food service bldg. $600,000; utilities, $597,500, for University of Alaska. CD 12/23/46.

† Alaska, Cordova—SCHOOL—Alaska P. Wks., Dpt. Interior, Juneau, school. $675,000.

† Alaska, Fairbanks—SCHOOL—Alaska P. Wks., Dpt. Interior, Juneau, school addn. $587,000. CD 6/30/52.

▲ Alaska, Fairbanks—HIGH SCHOOL—Alaska P. Wks., Dpt. Interior, Juneau, plans by W. A. Manley, Anchorage, high school, Proj. 59-A-5. $2,385,600. CD 6/30.

† Alaska, Kodiak—HIGH SCHOOL—Alaska P. Wks., Dpt. Interior, Juneau, high school. $600,000.

† Alaska, Seward—HOSPITAL—Alaska P. Wks., Dpt. Interior, Juneau, hospital. $725,000.

† Alaska, Sitka—SCHOOL—Alaska P. Wks., Dpt. Interior, Juneau, school addn. $662,000. CD 2/3/50.

▲ Man., Winnipeg—HOSPITAL WING—Govt. of Canada Dpt. Veterans Affairs, Headquarters Bldg., plans by Moody & Moore, 295 Broadway, 7 story, rein.-con. Deer Lodge Hospital wing to replace two existing wooden buildings. $4,500,000.

▲ Ont., Hamilton—SCHOOLS—Hamilton Bd. Educ., 357 Hunter St. W., plans by Prack & Prack 310 Main St. E., junior wing to senior school, eastern portion of Mountain Area, $300,000; plans by G. T. Evans, 36 James St., S., 2 story U-shaped, steel frame, brick, Secondary School, Mountain Area, $2,750,000.

COMMERCIAL BUILDINGS

▲ Calif., Decoto—HOUSING UNITS—Biltmore Homes, Inc., 9434 Long Beach Blvd., South Gate, 600 housing units Decoto-Hayward Highway. $5,000,000.

▲ Calif., Oakland—STORES, etc.—John R. Sousa, c/o Warnecke & Warnecke, archts., 507 Howard St., San Francisco, 10 story, stores and parking garage. $3,000,000.

▲ Calif., San Bruno—HOUSING—Dist. P. Wks. Office, Twelfth Naval Dist., San Bruno, construct, manage and finance, 500-unit housing between El Camino Real & Juniper, Serra Blvd. fronting on San Bruno Ave. $5,000,000. Angus McSweeney, 514 Mission St., San Francisco, archt.-engr. CD 9/18.

▲ Colo., Westminster—RESIDENTIAL SUBDIVISION, etc.—S. & H. Investment Co., c/o Hayutin & Hayutin, 2239 E. Colfax St., Denver, 1,200-unit residential subdivision and shopping center, Shaw Heights Subdivision. $15,000,000. Ripple & Howe, 833 23 St., Denver, consult. engrs. C. Howard Miller, 8820 W. 68 Ave., Arvada, land planner.

Ill., Lincolnwood—HOMES—Owner, c/o W. B. Cohan & Assocs., archts., 724 S. Michigan Ave., Chicago, Zone 5, 40 homes near Pratt Ave. and Central St. $800,000.

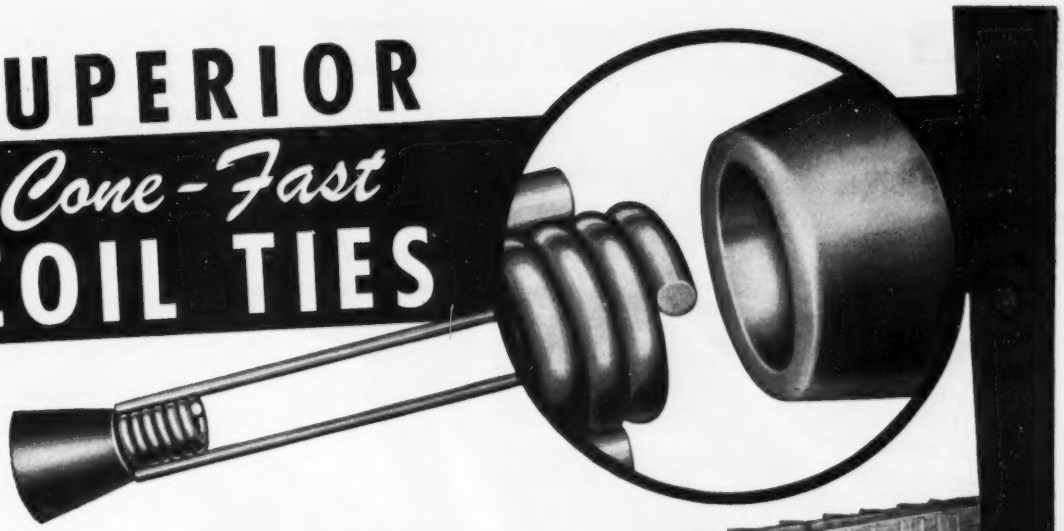
Ind., Greenwood—HOMES—William J. Grossman, 22 E. 63 St., Indianapolis, 75 homes in Greenwood Addn. $900,000. G. F. Rooker Eng. Co., 108 E. Washington St., Indianapolis, consult. engr.

▲ Ind., Indianapolis—COLLEGE—Marian College, 3600 Cold Springs Rd., Catholic College adjacent to Marian College for Girls operated by Sisters of St. Francis of Oldenburg. $1,500,000.

▲ Ind., Indianapolis—COLLEGE—Sisters of St. Francis, Bd. of Trustees Oldenburg, Ind. and Marian College,

(Continued on page 91)

SUPERIOR
Cone-Fast
COIL TIES



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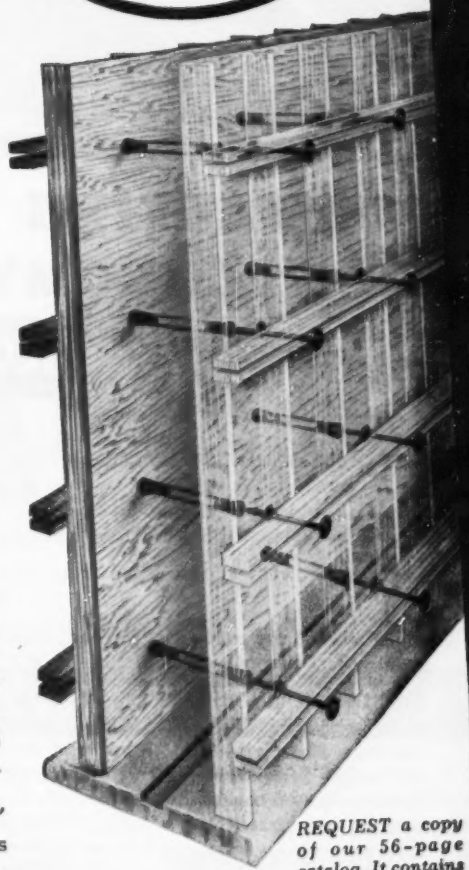

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Continued from page 88)

3600 Cold Spring Rd., plans by D. A. Bohlen & Son, 930 State Life Bldg., Zone 4, 2 and 1 story, bsmnt., brick, stone, science bldg., administration bldg., auditorium, chapel Marian College addn., $1,500,000.

▲ **Ind., Muncie**—CHURCH—First Presbyterian Church, Rev. Lewis N. Gidler, pastor, Muncie, plans by Carr & Cunningham, Schofield Bldg., Cleveland, O. 1 and 2 story, bsmnt., stone, brick church $1,343,000. CD 12/18/46.

Ind., South Bend—TELEPHONE EXCHANGE—Indiana Bell Telephone Co., 240 N. Meridian St., Indianapolis, plans by Alden Meranda, Bd. of Trade Bldg., Indianapolis telephone exchange, $600,000.

▲ **Md., Upper Marlboro**—COMMERCIAL CENTER—Syndicate, c/o Harry Boswell Jr., 3718 Rhode Island Ave., Mount Rainer, and Philip Lustine, 1619 Allison St. N.W., Wash., D.C., Commercial Center, incl. 10 story hotel, stores, apartments, 10 story office, Defense Hy., Washington-Baltimore Parkway, Prince Georges Co. $22,000,000.

▲ **Mass., Boston**—HOTEL, BUSINESS and ENTERTAINMENT CENTER—Syndicate, c/o R. L. Stevens, Empire State Bldg., New York, N. Y., hotel, offices, stores, convention hall, theater and undergrond garage on New York Central yards site, Back Bay section. Five year program. $75,000,000.

▲ **Mass., Hyde Park**—RESIDENCES—Stoney Brook Village Corp., 199 Washington St., Boston, 300 residences near Dedham Line, development site 50 acres. $3,000,000.

Mass., Lawrence—BANK—Essex Savings Bank, 296 Essex St., plans by Hutchins & French, 11 Beacon St., Boston, masonry bank, Essex and Lawrence Sts. $600,000.

Mass., Woburn—RESIDENCES—White Spot Gardens, Patrick Decillis, 42 Benton Rd., Somerville, plans by A. Harry Erickson, 1772 Mass Ave., Lexington, 90 residences. $700,000.

▲ **Mass., Worcester**—BANK—Worcester County Trust Co., Wm. D. Ireland, pres., 466 Main St., plans by Thomas M. James Co., 101 Newbury St., Boston, bank, 440-442 Main St. $1,000,000.

Mo., Kansas City—HOSPITAL—Baptist Memorial Hospital Assn., c/o John L. Strandberg, chn., 3405 Terrace St., Kansas City, Mo., plans by Welton Becket & Assoc., 1114 Grand Ave., Kansas City, Mo., 200-bed hospital on 23 acre site, 65 St. and Rockhill Rd. $850,000. J. Gordon Turnbull, Inc., 2630 Chester St., Cleveland, O., consult. engr.

▲ **Mo., Kansas City**—APARTMENT—Lewis Kitchen Realty Co., R. A. Long Bldg., Kansas City, Mo., plans by Kivett & Myers, 1016 Baltimore St., Kansas City, Mo., five 10 story apartments, incl. 1,000 units, 295,000 sq. ft. office bldgs., multi-level parking on 3 block area, Seventh, Tenth and Pennsylvania-Washington Sts. $25,000,000.

▲ **N. J., Trenton**—DEPARTMENT STORE—Arnold Constable & Co., 5 Ave. and 40 St., New York, N. Y., department store. $1,000,000.

▲ **N. J., Trenton**—DEPARTMENT STORE—R. H. Macy, Inc., 151 W. 34 St., New York, N. Y., department store, E. State St. $1,000,000.

N. Y., New York—APARTMENT—Fieldston Homes, Inc., 5620 Netherland Ave., Zone 63, plans by Philip Birnbaum, 12 E. 48 St., Zone 17, 6 story apartment, Riverdale Ave. and 256 St. $908,000.

N. Y., New York—OFFICE—Ira Kavanau, c/o Herbert Tannenbaum, archt., 205 E. 43 St., Zone 17, 4 story office, 683-689 Third Ave. and 203 E. 43 St. $600,000.

N. Y., New York—APARTMENT—Northboro Apartments, Inc., 332 E. 149 St., Zone 51, plans by Julius Fishkind, 161-19 Jamaica Ave., Jamaica, 6 story apartment, Netherland Ave., north of 235 St. $500,000.

▲ **N. Y., New York**—OFFICE—The Pacwest Realty Corp., 2 E. 61 St., Zone 21, plans by Emery Roth & Sons, 575 Madison Ave., Zone 22, 18 story office, 662 Madison Ave. between 60 and 61 Sts. $3,968,063.

▲ **O., Columbus**—SHOPPING CENTER—Edward L. McVey Enterprises, 200 S. Hamilton Rd., 40-acre shopping center, incl. retail stores, medical center, bowling alley, 1,300-acre parking lot, Whitehall. $5,000,000.

O., Toledo—Y.M.C.A. BUILDING—Young Men's Christian Assn., Dr. R. C. Young, pres. Bd. Trustees, 110 Jefferson St., plans by Bellman, Gillett & Richards, 518 Jefferson St., West Toledo Branch Y.M.C.A. bldg., 2000 Tremainesville Rd., with swimming pool, gym., etc., similar bldg. for South Toledo Branch, near Anthony Wayne Trail and Woodsdale. $750,000. CD 2/6/50 and 5/8.

▲ **Pa., Barren Hill**—SHOPPING CENTER—Whitemarsh Twp. Shopping Center, c/o Delaplaine McDaniel, Western Saving Fund Bldg., Phila., shopping center. $6,000,000.

Tex., Galveston—BANK—Hutchings Sealy National Bank, 2202 Market St., plans by Kenneth Franzheim, 2402 Crawford St., Houston, bank and office. $500,000. Dale S. Cooper & Assoc., 420 Sul Ross St., Houston, consult. engrs.

Va., Falls Church—RESIDENCES—Charles Awret, 3420 N. Westmoreland St., 40 brick, frame, stone residences. $600,000.

▲ **Va., Hampton**—RESIDENCES—Paul R. Bickford, 146 E. Queens St., 200 concrete masonry, low rental residences. $1,250,000.

Va., Richmond—LIBRARY—University of Richmond, Richmond, brick library. $500,000. CD 10/11/44.

▲ **Va., Roanoke**—HOTEL—Norfolk & Western Ry. Co., A. B. Stone, ch. engr., General Office Bldg., Hotel Roanoke addn. $1,000,000.

▲ **Wash., Seattle**—HOUSING UNITS—Mutual Housing Co., 2017 W. 57 St., will not construct, 200 duplex housing units, Waters Ave. and Bangor St., $4,000,000. Project abandoned. CD 1/14.

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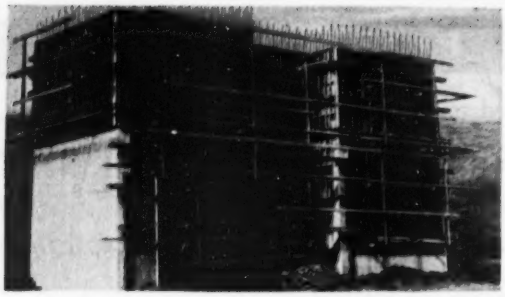

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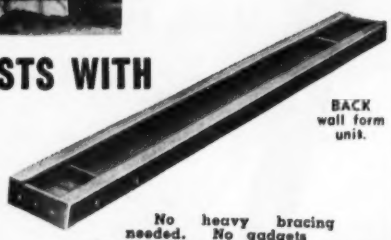
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▲ **Wis., Milwaukee**—HIGH SCHOOL—Lutheran High School Assoc. of Greater Milwaukee, 1815 N. 13 St., Zone 12, plans by Grassold & Johnson & Assocs., 734 N. Jefferson St., Zone 2, high school $2,000,000.

Ont., Ottawa—APARTMENT—J. P. Chenier & J. Arron, 227 Laurier Ave. W., 13 building apartment, Carling Ave. between Cole and Churchill Aves. $700,000.

INDUSTRIAL BUILDINGS

▲ **Ill., Arlington Heights**—PLANT—National Dairies Corp., Hydrox Div., 75 E. Wacker Dr., Chicago, Zone 1, ice cream plant, $1,000,000.

▲ **Ill., Northbrook**—FACTORY, etc.—Barrett Cravens Co., 4613 S. Western St., Chicago, factory and office, Dundee Rd. near Edens Hy. $1,000,000.

▲ **Ky., Louisville**—GARAGE—J. Graham Brown, Brown Hotel, plans by Preston J. Bradshaw, 1800 Olive St., St. Louis, Mo., 4 or 5 story parking garage, 413 W. Broadway, $1,500,000.

Mich., Flint—CLASSROOM AND LABORATORY—General Motors Institute, General Motors Bldg., Detroit, Zone 2, classroom and laboratory bldg. $500,000.

▲ **N. J., Burlington**—PLANT—Public Service Electric & Gas Co. of New Jersey, 418 Federal St., Newark, electric plant addn., incl. 475,000 kw. single shaft steam driven generating unit. $27,000,000.

▲ **N. C., Asheville**—PLANT—American Enka Corp., Enka, Asheville, plant addn. $2,000,000.

O., Cincinnati—PACKING PLANT—Ideal Packing Co., 2141 Baymiller St., plans by Grunkemeyer & Sullivan & Assoc., 3717 Eastern St., 50,000-60,000 sq. ft. packing plant, Grand Ave. near Northside Ave. $500,000.

Pa., Phila.—SERVICE PLANT—Ronan Motors, Inc., 5th St. and Allegheny Ave., auto service plant. $500,000.

▲ **S. C., Spartanburg**—BAKERY—General Baking Co., 420 Lexington Ave., New York, N. Y., bakery. $1,000,000.

▲ **Tenn., Columbia**—PLANT—Shea Chemical Corp., Columbia, plant addn. $2,000,000.

▲ **Tex., Houston**—PLANTS—Hughes Tool Co., 5425 Polk St., No. 1, general plant unit for manufacture of oil well drilling bits, $750,000; No. 2, general repair shop, $300,000; No. 3, plant unit for manufacture of 'Specialized' oil field tool supplies, $500,000. Lockwood & Andrews, Union Natl. Bank Bldg., consult. engrs. CD 2/13.

Tex., Houston—SHOP, etc.—Oil Center Tool Co., 1912 Airline St., lathe work shop expansion, $100,000; general imprvs. to plant to increase overall production, $500,000.

Wash., Longview—PLANT—Pacific Paperboard Co., Longview, rebuilding paperboard plant, $960,000.

▲ **Ont., Toronto**—GARAGE, etc.—Canadian National Rys., R. O. Stewart, ch. engr., 355 McGill St., Montreal, Que., plans by G. F. Drummond, c/o owner, ch. archt., 6 story, express garage, communications depts. and offices bldg., Front St. W. and Simcoe St., $3,500,000.

Ont., Toronto—PLANT—Plate & Structural Steel Sales Ltd., 48 Abell St., 60,000 sq. ft. steel fabricating plant, Hy. 27, near Malton on 22-acre site, $750,000.

▲ **Ont., Windsor**—PLANT—Chrysler Co. of Canada Ltd., Windsor, auto plant addn. $17,000,000. Wm. R. Souter & Assocs., 36 James St. S., Hamilton, archts. CD 2/18.

Que., Montreal—PLANT—International Cliff Co. Ltd., 1470 Peel St., plans by Lawson & Betts, 660 W. Ste. Catherine St., plant, $750,000. Dr. W. Bruns, Dusseldorf, Germany, engr.

Que., Montreal—WAREHOUSE—Union Electric supply Co., Ltd., 270 W. Craig St., plans by Lazer & Sterlin, 2950 Van Horne Ave., 2 story, 275 x 375 ft., rein.-con., brick, warehouse, $600,000 CD 12/31.

UNCLASSIFIED

Ala., Athens—SERVICE DISTRIBUTION LINE—City of Athens, City Hall, 100 mi. electric distr. lines and sys. imprvs. $635,000.

Ala., Fort Deposit—GAS SYSTEM—City, City Hall, natural gas system. $750,000.

▲ **Calif., Redwood City**—PORT FACILITIES—City, City Hall $1,000,000 bond election Apr. 7, imprvs. port facilities. CD 1/30.

† **D. C., Wash.**—ELECTRIC DISTRIBUTION SYSTEM, etc.—Dpt. Navy, Naval Gun Factory, electrical distr. system and sub-station facilities, Naval Gun Factory. $965,000. Jack S. Steele Co., 1300 W. Hunting Park Ave., Phila., Pa., consult. engr. and archt.

▲ **Florida**—TRANSMISSION LINES, etc.—Florida Power & Light Co., 25 S.E. 2 Ave., Miami, cross state transmission line and sub-station $22,000,000; 135,000 kw. generating plant (site not selected $8,000,000; system imprvs. and addns., $3,000,000. CD 2/19/46.

▲ **Ga., Columbus**—RAILROAD TRACKAGE—Central of Georgia Ry., H. G. Carter, ch. engr., Savannah, addnl. railroad trackage. $3,000,000.

▲ **Iowa**—RURAL DISTRIBUTION LINES—Eastern Iowa & Light & Power Co-operative, Wilton Junction, 133 mi. rural distr. lines, 26 mi. transmission lines and sys. imprvs., Scott Co. $1,000,000. Stanley Eng. Co., Hersey Bldg., Muscatine, consult. engr. CD 2/18.

Minnesota—RURAL DISTRIBUTION LINES—Border Counties Power Co-operative, Inc., Warroad, two 1,000 kw diesel generating units, 65 mi. 34.5 kv. transmission line, related sub-station facilities, Lake of the Woods Co. $764,000. CD 11/22/46.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Conn., Bridgeport** — HOUSING — B.A. 3/13 — City Housing Auth., 252 Hallett St., Comn. MR-40, 192 unit, HOUSING, Beardsley Terrace Extension, $2,000,000. Plans deposit $100. Harry G. Linsay & Fred C. Johnson, 211 State St., archts. Bids 2/13 rejected. CD 2/24, under LB.

SOON LETS CONTRACT—BUILDINGS

▲ **Me., Rumford**—HYDRO-ELECTRIC FACILITIES—At office Charles T. Main, Inc., engr., 80 Federal St., Boston, Mass., soon lets contract, re-development hydro-electric facilities for Rumford Falls Power Co., Rumford, Me. $2,500,000. CD 2/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
A. V. Taurasi Co., Inc., 139 Jaques St., Somerville, Mass. CA **$2,590,961**, est. $3,000,000. hy. and bridges Rte 1, relocation Amesbury and Salisbury. CD 2/9, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Webster-Mag Realty Corp.**, Kensington, Conn., Owner Builds, **$1,500,000**, Webster Square SHOPPING CENTER 107-acre tract, fronting on Routes 5,72, Farmington Ave. and Seymour Rd., BERLIN, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 10 Maryland — March 17 New Jersey
STREETS AND ROADS
March 10 Maryland — March 17 New Jersey

▲ **Md., Baltimore** — B.A. 3/11 — City, Bureau Bldg. Constr., 410 Municipal Bldg., Incinerator No. 4 2 stacks 12x150 ft., 4 furnaces, stokers oil burners, Pulaski Hy. plant, $1,500,000. Plans deposit $50. R. E. L. Williams, c/o owner, bldg. constr. engr. CD 11/17/50.

BIDS ASKED—BUILDINGS

▲ **N. J., Newark** — HOSPITAL — B.A. 3/26 — Parks & Public Property Dpt., City Hall, 14 story, steel hospital, air-conditioning, etc., Bergen St. $9,000,000. Ziegler, Childs & Paulsen, 921 Bergen Ave., Jersey City, archts. CD 1/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,
American Bridge Div., U. S. Steel Corp., 71 Broadway, New York, N. Y. CA **$3,182,265**, est. $3,762,000, 1.6 mi. steel superstructure, incl. railing on previously constructed concrete abutments and bents on western half of bridge;
Construction Aggregates Corp., 1 E. 42 St., New York, N. Y. CA. **$1,031,470**, est. $1,036,000, constr. 10 rein.-con. rigid frame bents to serve as foundation for 0.1 mi. of bridge's center sect., foregoing for foundation and superstructure work on Tappan Zee Bridge, New York State Thruway, Rockland and Westchester Counties. Bids Jan. 29. CD 2/2, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Potter-DeWitt Corp., Pavilion, N. Y., CA. **$1,808,597**. est. $1,989,000, paving 6.52 mi. and traffic interchange constr. New York State Thruway, Cayuga and Onondaga Counties;
Arute Bros., Inc., 560 S. Main St., New Britain, Conn., CA. **$613,059**, est. $637,000, 3.29 mi. Rte. 15 interchange facilities, New York State Thruway, Monroe Co.;
Delma Eng. Corp., 1208 Wyatt St., New York, N. Y., CA. **$5,996,079**, est. $7,505,000, 1.29 mi. work on Major Deegan Expressway, Bronx Co. Grand total $8,417,735. Bids Dec. 30. CD 1/5, under LB.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,
Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., CA, **$4,865,415**, superstructure bridge over Raritan River, Borough of Sayreville and Woodbridge Twp., Garden State Parkway, Contract No. 45, Section 7, Middlesex Co. Bids Feb. 19. CD 1/23.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,
C. J. Langenfelder & Son, Inc., 8427 Pulaski Hy., Baltimore, Md., CA **$2,594,557**, construct structures, and grading, drainage, paving 3.62 mi. Sec. 33A of Delaware River Exten. of Pennsylvania Turnpike, Montgomery Co. Bids Feb. 3. CD 2/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Paul Tishman Co., Inc.**, 21 E. 70 St., New York 21, N. Y., LB **$4,087,890**, general constr.;
H. Sand, Inc., 291 Broadway, New York 7, N. Y., LB $417,000, heating and ventilating;
Far Plumbing Co., 2018 Crotona Parkway, New York 60, N. Y., LB **$423,935**, plumbing for Carver HOUSES, Proj. No. NYS-56, Sect. I, incl. Bldgs. Nos. 1 to 6 (inclusive) in area bounded generally by E. 202 St., Park Ave., E. 99 St. and Madison Ave., Manhattan Boro, NEW YORK, N. Y. New York City Housing Auth., 63 Park Row, New York 7, N. Y. Bids Feb. 25. CD 2/2.

▲ **Perlmutter Bros., Inc.**, Rockville, Md. CA Est cost **$5,000,000**. design and construct 400-unit SUBDIVISION, Randolph Hills, WHEATON (STA. SILVER SPRING), MD.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 18 Louisiana — March 27 Alabama
STREETS AND ROADS
March 18 Louisiana

BIDS ASKED—BUILDINGS

▲ **Miss., Gulfport**—SCHOOLS—B.A. 3/18—Gulfport Municipal Separate School Dist., East Gulfport Junior High School and West Gulfport Junior High School. $500,000 each. CD 6/13/52.

▲ **Tenn., Memphis**—CHEMISTRY, etc.—B.A. 3/31—University of Tennessee, Knoxville, chemistry-physiology bldg., University of Tennessee Medical School. $1,750,000. Plans deposit $100. CD 3/27/51.

▲ **Ky., Covington**—TEMPLE—B.A. 4/10—Masonic Orders, Fourth and Scott Sts., scottish rite and masonic temple, 1551-55 Madison Ave. $1,000,000, E. C. Landberg & Assoc., 114 Garfield Pl., Cincinnati, O., engrs.-archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Williams Paving Co., Inc.**, 1269 E. Princess Anne Rd., Norfolk, Va., LB **$1,234,192**, runways extens., addnl. imprvs., NAOTS-NAF, NOY 75669, Spec. 36524, CHINCOTEAGUE, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Feb. 24. Sturgeon, Clark & Buhr, Midtown Bldg., Wards Corner, Norfolk, Va., engrs. CD 2/2.

▲† **Westinghouse Electric Corp.**, 915 W. 21 St., Norfolk, Va., LB **$1,150,260**, compressor drive for 19-ft. transonic pressure tunnel, LANGLEY FIELD, VA. National Advisory Com. for Aeronautics, Langley Field, Va. Bids Feb. 17. CD 9/11.

▲ **WEST VIRGINIA**—West Virginia Turnpike Comn., 1340 Wilson St., Charleston, Zone 1,
Ralph E. Mills Co., 410 Ann St., Frankfort, Ky. and **Morrison-Knudsen, Inc.**, 319 Broadway, Boise, Idaho, LB, **$6,182,348**, Contract No. 27, grading, draining 9 mi. hy., substructures for 8 bridges, relocation 2.4 mi. State Hy. between Miami and Chesapeake, Kanawha Co., CD 2/2; LB, **$1,883,819**, Contract 23 B, grading, draining 4.3 mi. hy. between Piney Creek and Little Whitestick Creek, Raleigh Co., CD 1/23;
Central Pennsylvania Quarry & Stripping Co., Hazelton, Pa., LB, **$2,309,767**, Contract 23 A, grading, draining 6.7 mi. between Turnpike overpass at Secondary Rt. 40 to Piney Creek, Raleigh Co., CD 1/23;
W. E. Graham & Sons, Cleveland, N. C., LB, **$1,117,895**, Contract 19, grading, draining 4.8 mi. north of Princeton for distance of 4.2 mi. Mercer Co., CD 2/2; Bids Feb. 24.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,
Dickerson, Inc., Box 448, Monroe, N. C., LB **$126,181**, est. $100,000-$125,000, subgrade reinf. and sand asph. base and surf. 6.305 mi., Proj. No. S 2-1603, S-514 (2), Tyrrell Co.; LB **$107,302**, est. $100,000-$125,000, subgrade reinf. and sand asph. base and surf. 5.71 mi., Proj. 2-656, S-532 (2), Washington Co.;
C. G. Poole, Inc., Bryan Bldg., Raleigh, N. C., LB **$212,876**, est. $225,000-$250,000, grading 15.46 mi. U. S. 15, Proj. 4322, F-197 (13), F.I.-44 (4), Granville Co.;
Wayne Eng. & Constr. Co., Box 306, Mt. Olive, N. C., LB **$383,003**, est. $400,000-$500,000, stabil. aggregate base, bit. surf. tr. 10.06 mi. U. S. 15-A, Proj. 4796, S. F. 208 (16), Wake Co.;
Bituminous Constr. Co., Inc., Whitmire, S. C., LB **$512,313**, est. $400,000-$500,000, stabil. aggregate base, bit. surf. tr. and structures, **14.11 mi. U. S.** 1 Proj. 4862, F-658 (3), Wake and Franklin Counties;
Propst Constr. Co., Inc., Concord, N. C., LB **$348,856**, est. $300,000-$400,000, stabil. aggregate base course and bit. surf. tr. 9.78 mi. Proj. 6175, F-638 (6), Cabarrus Co.;
W. E. Graham & Sons, Cleveland, N. C., LB **$82,823**, est. $75,000-$100,000, stabil. aggregate base and bit. surf. tr. 2.2 mi. Proj. 7464, F-191 (7), Forsyth Co.; LB **$68,503**, est. $100,000-$125,000, coarse aggregate base or PCSBC and bit. surf. tr. 3.42 mi. Proj. 8-505, S-208 (3), Wilkes Co.; LB **$102,120**, est. $100,000-$125,000, STBC and bit. surf. tr. 18.5 mi. Proj. 9-9-82-231, 9-9-82-232, Iredell Co.;
A. B. Burton & Co., Inc., Box 817, Lynchburg, Va., LB, **$1,316,172**, est. $400,000-$500,000, grading 6.59 mi. Proj. 9461, Haywood Co.;
Lavender Bros., Earl, N. C., LB **$83,741**, est. $100,000-$125,000, STBC, coarse aggregate, base and bit. surf. tr. 9.11 mi. Proj. 9-9-81-228, Gaston Co. Bids Feb. 24. CD 2/13.

▲ **Southeastern Contg. Co. and C. E. Adams & Co.**, 3700 10 Ave. N., Birmingham, Ala., LB, **$1,749,271**, natural gas system, ALBERTVILLE, ALA. Marshall Co. Gas District, Court House, Albertville, Ala. Bids Feb. 18. CD 2/21.

▲ † **Southern Road Builders, Inc.**, Augusta, Ga., CA, **$1,428,301**, operations: apron, Brookley Air Force Base, Inv. 53-41, MOBILE, ALA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. CD 2/16, under LB.

▲ **MISSISSIPPI**—State Hy. Comn., State Office Bldg., Jackson,
Texas Constr. Co., 1909 N. Harwood St., Dallas, Tex., LB **$1,304,314**, bridge over West Pascagoula River; LB **$2,614,852** bridge over East Pascagoula River, Jackson Co.;
Jahncke Services, Inc., 814 Howard Ave., New Orleans, La. LB **$2,614,852**, roadway more than 3 mi. between the bridges, Jackson Co. Bids Feb. 24. CD 2/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Graham Bros.**, P.O. Box 423, Richmond, Va., LB **$1,127,000** brick, concrete, masonry, structural steel frames DORMITORY group, FREDERICKSBURG, VA. Mary Washington College, Fredericksburg, Va. Bids Feb. 19. CD 1/16.

▲ **Westmont Homes**, c/o Jonathan Woodner Co., Ring Bldg., 1200 18th St. N. W., Wash., D. C. Owner Builds. **$1,800,000**, 250 pre-fabricated RESIDENCES, QUANTICO, VA. CD 2/12.

▲† **J. A. Jones Constr. Co.**, P. O. Box 966, Charlotte, N. C., LB **$12,908,825**. forty-five 225-enlisted mens BARRACKS and supporting activities, ENG-31-075-53-9, FORT BRAGG, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. Louis & Henry, Starks Bldg., Louisville, Ky., engrs-archts. Bids Feb. 17. CD 1/28.

▲ **G. A. Paul**, Gate City, Birmingham, Ala., CA, **$1,154,777** HOUSING Project ALA 47-3, HUNTSVILLE, ALA. Huntsville Housing Auth., Huntsville, Ala. Bids Feb. 12. CD 2/17, under LB.

MIDDLE WEST

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Chicago**—WAREHOUSE—Firestone Tire & Rubber Co., 1030 W. North Ave., soon lets contract 150,000 sq. ft., steel frame, brick, concrete warehouse, $1,200,000.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **W. Lyman Case & Co.**, 150 E. Broad St., Columbus, O. Owner Builds. **$3,000,000**. SHOPPING CENTER, Center St. with 400-car capacity parking, MARION, O.

▲ **Ferro Concrete Constr. Co.**, 203 W. 3 St., Cincinnati, O., CA. **$2,000,000**, CLEANING BLDG. at Atomic Plant, (Subcontractor under Peter Kiewit Son's Co., P.O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave., N.W., Wash. 25, D. C. PIKETON and WAKEFIELD, O. CD 8/13, under CA.

▲† **H. K. Ferguson Co.**, 1783 E. 11 St., Cleveland, O. CA. **$2,842,000**, MAINTENANCE and STORES BLDG. at Atomic Plant, (Subcontractor under Peter Kiewit Son's Co., P.O. Box 268, Portsmouth, O.) for Atomic Energy Comn. 1901 Constitution Ave. N.W., Wash. 25, D. C., PIKETON and WAKEFIELD, O. CD 8/13, under CA.

▲ **United Builders, Inc.**, Glass Block, Marion, Ind., Owner Builds, **$1,250,000**. 100 HOMES in and develop new addition, River Road and Highland Ave. River View Subdivision, MARION, IND.

▲ **H. Morton Robbins & Assocs.**, 5847 W. Touhy Ave., Skokie, Ill., Owner Builds, **$1,000,000**, 58 HOMES, near Oakton St. and Harlem Ave., CHICAGO, ILL. Awarded Feb. 13.

▲ **The Lummus Co.**, 385 Madison Ave., New York, N. Y., CA, **$5,000,000**, REFINERY extension, incl. airlift thermofor catalytic cracking unit and a catalytic polymerization unit to extend refinery's high octane gasoline producing facilities, EAST ST. LOUIS, ILL. Socony-Vacuum Oil Co., Inc., O. C. Johnson, mgr., S. 20 St., East St. Louis, Ill.

▲ **Owner** c/o W. B. Cohan, archt., 624 S. Michigan Ave., Chicago 4, Ill., Owner Builds, **$1,000,000**. 40 RESIDENCES, LINCOLNWOOD, ILL. Awarded Feb. 19. CD 2/17.

▲ **Chicago Construction Co.**, 166 W. Jackson Blvd., Chicago, Zone 4, Ill. Owner Builds, **$5,500,000**. 300 HOMES, NORTHBROOK, Ill. A. J. Del Bianco, 5501 W. Irving Park Ave., Chicago, Zone 41, Ill., archts. Awarded Feb. 17.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. LB. **$1,994,394**, general contract;
Davis Bros., Inc., 2651 Bagley St., Detroit, Mich. LB. $498,130, mechanical contract;
Sarin Electric Co., 10431 W. Chicago St., Detroit, Mich. LB. **$312,000**. electrical contract for 4 story with two 1 story wings brick, steel, concrete HOSPITAL, Hastings, Rivard, Lafayette and Macomb Sts., DETROIT, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. Bids Feb. 18. CD 1/7.

▲ **Harry Slatkin Builders, Inc.**, 11534 Dexter St., Detroit, Mich. Owner Builds. **$3,000,000**. 300 terrace type bridge APARTMENTS on 28 acre site, Cherry-lawn, Pembroke, Wyoming and Outer Drive Rds., DETROIT, MICH.

▲ **Warren Twp. School Dist. No. 2**, Warren, Mich., rejected bids Jan. 23, 2 story, bsmnt., brick, steel high school, WARREN, MICH. LB, **$1,232,600**, est. $995,000. CD 1/7.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 10 Iowa — March 16, April 6 Missouri
STREETS AND ROADS
March 10 Iowa — March 16 Missouri
March 17, 18 Texas

BIDS ASKED—BUILDINGS

▲ **Neb., Lincoln**—DORMITORIES—B.A. 3/10—University of Nebraska, Bd. Regents, Lincoln, men's dormitories. $2,000,000. Davis & Wilson, 225 Stuart Bldg., archts. CD 10/17.

▲ **Tex., Amarillo**—EDUCATIONAL—B.A. 3/16—First Baptist Church Congregation, Amarillo, 3 story, bsmnt., brick, masonry, steel, bsmnt., educational revision existing educational—enlargement existing sanctuary. $1,800,000. Emmett F. & Jas. F. Rittenberry, 1000 Med. Prof Bldg., archts. Frank T. Drought, 117 W. Pecan St., San Antonio, engr. CD 4/25.

▲ **Okla., Oklahoma City**—STORE—Bids Asked—Sears, Roebuck & Co., W. Arthington and S. Homan Sts., Chicago, Ill. store, N.W. 23 and Pennsylvania Sts. $3,000,000. Sorey, Hill & Sorey, 809 N.W. 36 St., archts. CD 2/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Panama-Williams Co.**, c/o owner, CA **$14,250,000,** approx. 194 mi. 16 in. welded joint oil products pipe line from Port Arthur, TEXAS to Baton Rouge, LOUISIANA, to be known as "Evangeline" Products System, CA **$265,500,** products pumping station, Port Arthur, TEXAS, Texas Pipe Line Co. and Associated Companies (Texas Pipe Line Co., Gulf Refining Co., Sinclair Pipe Line Co.) Texas Bldg., Houston, Tex. CD 11/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ † **Utah Construction & C. H. Leavell & Co.**, Box 1451, El Paso, Tex., LB, **$2,274,464,** Major and Minor CALIBER BLDGS., Spec. 33427, SHUMAKER, ARK. Dpt. Navy, Bldg. 16, P. Wks. Office, New Orleans, La. Bids Feb. 27. CD 1/7.

▲ **Peter Kiewit Sons Co.**, Omaha Natl. Bank Bldg., Omaha, Neb., CA **$2,007,823,** general constr.;
Schollman Bros Co., 4116 N. 24 St., Omaha, Neb. CA. **$308,322,** mechanical work for SCHOOL and CONVENT, OMAHA, NEB. Sisters of Mercy, 1801 S. 72 St., Omaha, Neb., Bids Feb. 17. CD 2/10.

▲† **Robert E. McKee, General Contractor, Inc.**, P.O. Box 562, El Paso, Tex., LB **$1,257,300,** 180x320 ft. with 60x80 ft. wing steel frame engineering TEST BLDG., concrete pier and beam footings, White Sands Proving Ground, Inv. No. Eng 29-005-53-49, LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Feb. 17. CD 1/29.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 24 Washington

▲† **Ariz., Tucson**—APRON, etc.—B.A. 3/17—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., apron and taxiway at Davis-Monthan Air Force Base, ENG 04-353-53-113, $3,700,000. CD 12/5.

▲† **Wash., Spokane** — MAINTENANCE HANGAR — B.A. 3/18—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 150,000 sq. ft. heavy bomber maintenance hangar, Fairchild Air Force Base, Inv. 53-99 $3,729,000. Extended date. CD 2/11.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Stanley A. Vinburg**, 1390 Sherbrooke St. W., Montreal, Que. Owner Builds, **$7,000,000 APARTMENT,** 42-acre site in Spruce Cliff District off-street parking facilities, CALGARY, ALTA. CD 12/8.

▲ **Angus Robertson**, 5035 Western Ave., Montreal, Que., LB, **$3,000,000,** 7 story Royal Victoria HOSPITAL wing, MONTREAL, QUE. Royal Victoria Hospital Bd., Pine Ave. W., Montreal, Que. CD 4/12/51.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **United Contractors**, Fairbanks, Alaska, LB **$1,053,000,** est. $1,100,843, organizational maintenance bldgs., Items 1 and 3;
Rushlight Automatic Sprinkler Co., 55 N. E. Farragut St., Portland, Ore., LB **$495,070,** organizational maintenance bldgs., Item 2, Ladd and Eielson Air Force Bases, Inv. 53-50, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Feb. 9. CD 2/16, under LB.

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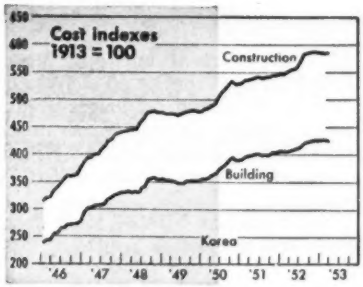
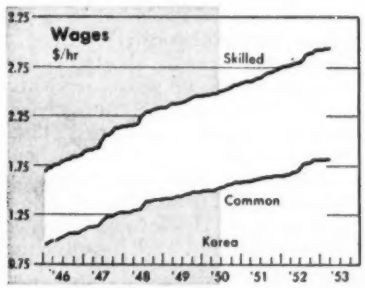
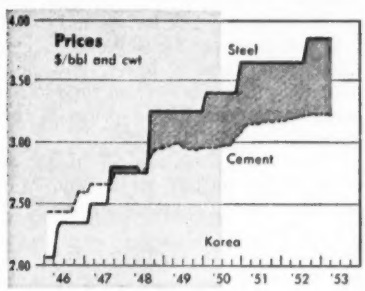
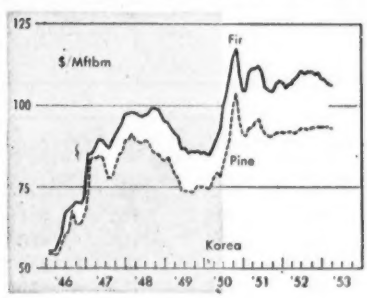






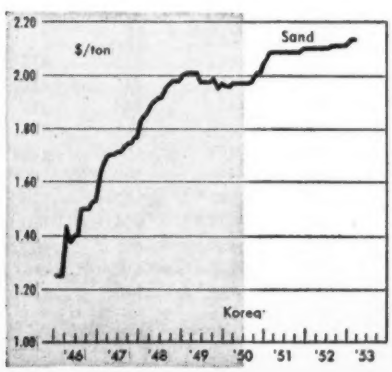


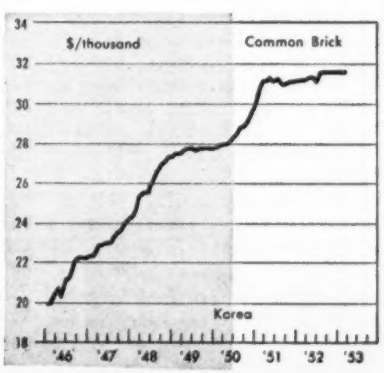
ENR INDEXES (1913 = 100), 20-cities' average	1953 March	% Change from last Month	% Change from last Year
Construction Cost	587.44	+0.04	+6.7
Building Cost	424.89	−0.08	+4.3
WAGE RATES, 20-cities' average			
Common	$1.821	+0.2	+9.4
Skilled (aver. 3 trades)	2.949	+0.1	+6.5
Bricklayers	3.278	+0.1	+5.4
Structural Ironworkers	2.877	+0.2	+6.5
Carpenters	2.692	0.0	+7.2
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.222	0.0	+1.3
Structural Steel, (3-mill aver.), per cwt	3.850	0.0	+5.5
Sand, per ton	2.134	0.0	+1.4
Lumber, 2x4 Fir, per M. ft. bm	106.375	−0.5	−0.5
Lumber, 2x4 Pine, per M. ft. bm	93.000	−0.5	+1.3
Common brick, per M	31.606	0.0	+1.5
Ready-mixed concrete, per c. y	11.371	−0.2	+3.1
Structural Clay Tile, 3x12x12 per M	154.388	−0.7	+0.3

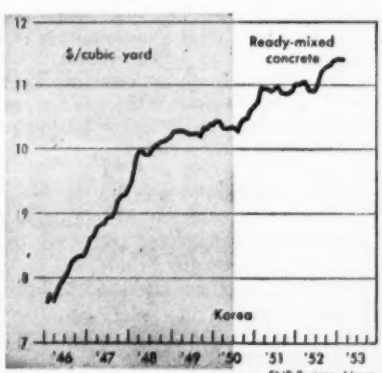
CONTRACTS AWARDED (Millions)	1953 Feb.	1953 2-Mos.	% Change from '52 Feb.	% Change from '52 2-Mos.
Total U. S. (ENR reported)	$1,023.0	$2,909.5	+29.7	+46.5
Private	651.1	1,828.7	+57.1	+60.7
Public	371.9	1,080.8	− 0.5	+27.5
Federal	99.2	328.1	−34.6	+ 7.0
ENR Volume Index, '13 = 100	480	597	+24.3	+39.5
NEW CAPITAL (Millions)				
Total	563.6	1,286.6	+ 2.5	+23.9
State & Municipal Bond Sales	288.8	626.4	−15.2	+44.5
Corporate Security Sales	267.6	636.6	+45.9	+13.1
Federal (non-federal work)	7.2	23.6	−72.1	−44.2
Federal (federal work)	——	——	0	0

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	Dec. 1952(D) Jan. 1953(J)	12-Mos. '52	% Change from Mo.	% Change from Yr.-Cum.
Cement bbls, Bu. of Mines	13.740(D)	251.136	+16.5(D'51)	+4.0(12)
Fabr. Struc. Steel, tons AISC	.234(J)	2.664	− 4.5(J'52)	−1.4(12)
Lumber, mil. ft. bm., NLMA	2.857(D)	37.271	+12.4(D'51)	−1.0(12)
Lumber Prod., mil. ft. bm., NLMA	2.883(D)	37.651	+ 9.5(D'51)	−4.1(12)
Contract Constr. Employ., BLS	2.256(J)	2.546†	− 2.7(J'52)	−0.9(12)

† Average.







ENR Business News

Costs show little change for sixth consecutive month

Lumber prices decline in five cities, wages up in four—structural steel, cement prices remain unchanged

For the sixth consecutive month, construction costs showed little change in March. On the average, slight declines in lumber prices tended to cancel out the effects of scattered wage increases, mostly for skilled workers.

ENGINEERING NEWS-RECORD's Construction Cost Index for March is 587.44, based on 1913 equals 100. The March reading was only 0.04% above the February value.

ENR's Building Cost Index also shows a slight change from the February reading. The March value is 424.89, down 0.08% from February.

Since September 1952, both indexes have been relatively stable. The Construction Cost Index for March is slightly more than one point higher than it was in September, while the Building Cost Index is less than half a point above September.

Lumber prices went down in five cities. Fir was down in four cities; pine prices were down in two. In St. Louis, fir prices moved up while pine dropped.

Prices of other key materials, structural steel shapes and cement, were unchanged.

The only increase in costs came on the wage front. Skilled wages went up in three cities and common labor was up in one. As a result, the 20-cities average for skilled wages went up slightly—0.1%—to $2.949 per hour, while the common labor average was 0.2% higher, moving up to $1.821 per hour.

Wage increases reported for March were limited to 7½ cents per hour, with one raise of 5 cents. With only one exception, the wage increases were for union health and welfare funds.

For materials, the price of fir 2x4s went down in four cities, and were higher in one—St. Louis. Pine prices went down in two cities.

• **These went up**—These are the cities in which costs went up this month:

Cleveland: Bricklayers received a 7.5-cent increase for health and welfare fund. The new rate is $3.195 per hour.

Los Angeles: Structural ironworkers received 7.5-cent increase for welfare fund, bringing the hourly rate up to $2.925. Bricklayers currently are working on a new health and welfare fund plan. On the materials side, the anticipated increase in lumber prices has been forestalled by softer demand.

New Orleans: Structural ironworkers won a 5-cent hourly increase for their welfare fund. The new rate is $2.70 per hour. Common labor, on building, received a wage increase of 7.5 cents, bringing the new rate to $1.30 per hour.

• **These went down**—In Baltimore, Chicago, Detroit and San Francisco, costs went down.

Baltimore: Fir 2x4s went down $4 to $98 per mftbm. Pine 2x4's were lower at $75 mftbm.

Chicago: Fir 2x4s averaged $1 lower at $103.50 per mftbm. But the decline made little difference in the indexes for the city. Pine prices were unchanged. On the wage side, truck driver rates, not included in the ENR indexes, went up 15 cents an hour.

Detroit: Fir 2x4s declined $5 to $105 per mftbm, but pine prices stayed at the February level. A mild shortage of pine in the longer lengths was reported in Detroit. Ready-mixed concrete, not covered in the ENR indexes, went down 5 cents to $10.70 per cu yd.

San Francisco: Fir 2x4s went down $4 to $67 per mftbm.

• **Some are steady**—In some other cities, costs were stable but local conditions were noteworthy.

Cincinnati: Cement shortages were reported holding up several residential construction projects. An early increase is expected in sand prices. Truck driver rates are up 15 cents an hour.

Dallas: Structural ironworkers are seeking a wage boost. Present rate is $2.78 an hour. Heavy construction activity is at a record level, but structural steel deliveries are slow.

Kansas City: Skilled construction trades soon may ask for an additional 7.5 cents per hour for welfare benefits. Lumber demand is heavy, and slow deliveries, particularly from the Northwest, may mean higher prices if the current demand continues.

St. Louis: Fir 2x4s are $5 higher at $116.75 per mftbm, while pine 2x4s are down by the same amount to $102 per mftbm.

Seattle: Laborers, operating engineers and teamsters are negotiating for new contracts to include welfare fund and contributions of 10 cents per hour.

ENR Cost Indexes in 21 Cities

1913 = 100

	Construction Cost			Building Cost		
	1953		1952	1953		1952
City	Mar.	Feb.	Mar.	Mar.	Feb.	Mar.
Atlanta	424	424	395	376	376	351
Baltimore	524	528	510	414	418	410
Birmingham	450	450	417	372	372	355
Boston	626	626	590	422	422	411
Chicago	661	661	626	433	433	415
Cincinnati	609	609	547	420	420	400
Cleveland	682	682	625	430	428	403
Dallas	455	455	437	382	382	371
Denver	602	602	571	452	452	431
Detroit	663	665	621	438	441	419
Kansas City	623	623	586	446	446	431
Los Angeles	610	610	565	420	418	394
Minneapolis	628	628	593	454	454	438
Montreal	516	516	500	399	399	383
New Orleans	476	461	435	398	397	379
New York	653	653	612	484	484	460
Philadelphia	636	636	601	480	480	462
Pittsburgh	607	607	557	439	439	416
St. Louis	627	627	587	446	446	429
San Francisco	557	561	532	391	395	383
Seattle	635	635	606	400	400	389

Second highest February on record for awards

Private construction leads field, running 61% above dollar volume for same period last year

Contract awards are running at an all-time high.

February contracts for heavy construction, as reported by ENGINEERING NEWS-RECORD, totaled $1,023 million, 30% above February, 1952. It was the second highest February on record for dollar volume.

Previous high for the month of February was set in 1951 during a rush of contracts for defense industrial building.

Private construction continued to set the pace with $651 million in awards. State and municipal contracts totaled $273 million, while awards for federal projects amounted to $99 million.

Private mass housing, with $274 million in contracts, and industrial building, with $229 million, led all other types of construction. Commercial building accounted for $77 million and unclassified construction posted a total of $67 million.

Top categories in public construction in February were: Public buildings, $99 million; highways and bridges, $91 million; public housing, $66 million; and public unclassified construction—mainly federal airports —$65 million.

• **New record foreseen**—Construction could hardly have hoped for two months that would be better than January and February of this year. The boom in contracts during the first two months of '53 has set a new record of $2,910 million. That's 47% ahead of 1952 and slightly above the comparable 1951 period when defense industrial building piled up contracts at a rate that set an all-time high.

Private construction is the biggest force behind the current boom; contracts for private construction are running 61% ahead of last year.

In the broad field of private construction, commercial building shows the biggest percentage gain. For the first two months of 1953, it is up 131% over the comparable 1952 period. Private mass housing continues to surprise those who have been predicting a decline. It shows no signs of letting up and is now 75% ahead of the January-February period in 1952 when contracts were running strong.

Industrial building is showing even greater strength than earlier estimates indicated. This category is now 53% above 1952. But industrial building is still under the peak of 1951.

• **State and municipal gains**—Public construction also is at a new, all-time high in '53, with state and municipal projects showing the greatest gain, 39% over 1952, and federal work up 7%.

Total contracts for public construction are up 28% over 1952. Every type of construction, except waterworks, has gained. Largest increases in the first two months were: sewerage work, up 113%; bridge construction, up 85%; and public unclassified construction, principally airports, up 56%. Public buildings, excluding public housing, are 23% ahead of 1952, while public housing is up 19%. Highway construction is sailing along 14% above last year's record high.

On a regional basis, the Middle West has posted the biggest gains in contract volume this year. The region reported a total of $921 million for the first two months for a booming 192% increase over 1952. The Middle West is leading all other regions in total contracts and in private mass housing, industrial and commercial building.

A 60% gain in total contracts was

ENGINEERING CONSTRUCTION CONTRACTS—FEBRUARY 1953

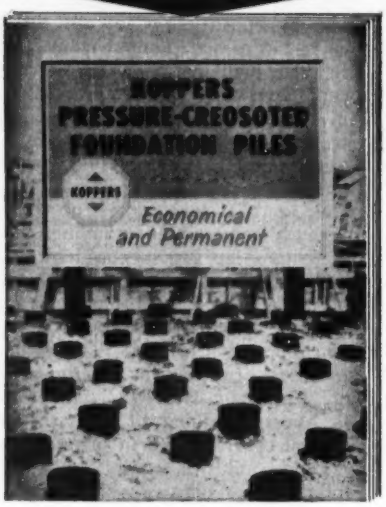
ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks—Thousands of Dollars (000 Omitted)

	February, 1953							U. S. Cumulative Two Months		% Change	Canada February
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1953	1952	'52 to '53	1953
Public Works											
Waterworks	426	322	2,305	5,009	5,490	2,991	**16,543**	**36,074**	45,389	−21	1,082
Sewerage	1,475	4,151	1,290	4,526	6,613	1,988	**20,043**	**69,328**	32,485	+113	569
Bridges	473	4,544	1,465	5,570	3,485	3,202	**18,739**	**73,087**	39,587	+85	320
Earthwork and drainage	38	984	1,417	726	7,516	3,623	**14,304**	**67,715**	65,220	+ 4	1,129
Streets and roads	3,913	30,903	6,022	7,202	11,923	12,477	**72,440**	**188,808**	165,722	+14	1,035
Public buildings, residential	28,573	11,964	12,293	9,448	1,590	2,205	**66,073**	**156,754**	131,644	+19	300
Other public buildings	5,433	28,405	23,847	16,050	11,521	13,309	**98,565**	**311,308**	253,613	+23	7,022
Unclassified	2,546	11,347	13,931	727	24,982	11,636	**65,169**	**177,794**	114,031	+56	5,047
Total Public	**42,877**	**92,620**	**62,570**	**49,258**	**73,120**	**51,431**	**371,876**	**1,080,868**	**847,691**	**+28**	**16,504**
Federal government (included in above classification)	3,225	22,767	21,027	1,650	28,977	21,520	**99,166**	**328,096**	306,619	+ 7	8,268
Private											
Bridges	.....	.....	.....	.....	150	4,000	**4,150**	**4,150**	840	+394	.....
Industrial buildings	31,046	44,267	27,659	48,336	30,848	47,113	**229,269**	**760,544**	495,877	+53	3,405
Com'l. buildings, residential	4,810	121,686	50,259	54,829	35,612	6,476	**273,672**	**784,538**	447,163	+75	10,306
Other commercial buildings	1,100	17,455	8,299	27,601	13,834	8,475	**76,764**	**159,883**	69,223	+131	1,845
Unclassified	.....	962	4,664	3,903	42,140	15,621	**67,290**	**119,558**	124,433	− 4	.....
Total Private	**36,956**	**184,370**	**90,881**	**134,669**	**122,584**	**81,685**	**651,145**	**1,828,673**	**1,137,536**	**+61**	**15,556**
Total Engineering Construction:											
February, 1953 — 4 weeks	**79,833**	**276,990**	**153,451**	**183,927**	**195,704**	**133,116**	**1,023,021**	.....	.....	.....	**32,060**
January, 1953—5 weeks	44,541	311,117	266,836	736,977	321,847	205,202	**1,886,520**	.....	.....	.....	104,176
February, 1952—4 weeks	23,611	178,956	169,434	97,332	210,011	109,085	**788,429**	.....	.....	.....	49,946
Two Months—1953	**124,374**	**588,107**	**420,287**	**920,904**	**517,551**	**338,318**	.....	**2,909,541**	.....	**+47**	**136,236**
Two Months—1952	57,051	366,811	524,833	315,188	526,165	195,179	.....	.....	1,985,227	.....	208,709
% Change '52 to '53	+118	+69	−20	+192	−2	+73	.....	.....	.....	.....	−35

VALUABLE MANUAL

Shows how creosoted timber piles save money . . . assure permanent foundations



Here's a book every engineer should have. It's filled with interesting facts. Graphic descriptions. Photographs of modern construction projects, large and small, that are founded on pressure-creosoted piles.

An interesting book, yes—but informative, too. Case histories tell how substantial savings have been effected and unusual construction problems have been solved by founding permanent structures on creosoted timber piles.

You'll find this book a valuable reference. Send for a copy today. There's no obligation involved.

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

KOPPERS PRESSURE-TREATED WOOD

reported for the Middle Atlantic region. This area leads in highway contracts. Private mass housing also is setting a fast pace in the region.

Other large gains in contract volume came in New England and in the Far West. In New England, total contracts for the first two months are 118% ahead of last year, with industrial building and public housing leading the way.

Public buildings, other than housing, and a large volume of industrial and public unclassified construction helped to boost the Far West 73% over 1952. The $40-million contract in January for a chemical processing plant at the Hanford atomic energy plant in Washington accounted for a big slice of the public buildings total in the Far West.

• **Two regions lost ground**—The South and the states west of the Mississippi. Contract volume in the South declined 20%, principally because of a drop in private mass housing. Volume was lower also for earthwork and waterways and for public buildings, including public housing. On the other side of the ledger, commercial building and sewerage work were up substantially over a year ago.

States west of the Mississippi reported a 2% decline in contract volume. That was traced to a dip in public construction where waterworks, sewerage, public housing and highways are down. However, industrial and private mass housing still are up to last year's level.

Demand for money rises

The record volume of construction going into contracts has boosted the demand for funds to finance new projects.

State and municipal bond sales for the first two months of '53 are 46% ahead of 1952. School construction is getting 19% more money this year than in '52. Bonds sold for school construction during January and February totaled $171 mililon.

Waterworks bonds, with $46.7 million, are 42% ahead of last year, while sewerage bond sales, totaling $65.9 million, are up 142%.

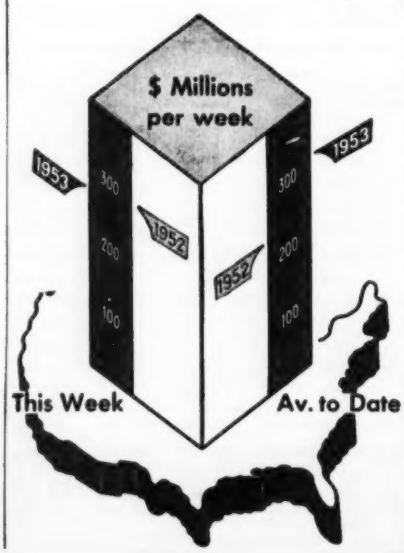
Other gains came in highways, bridges, public buildings and public housing. Highway bond sales for the first two months amounted to $41 million, up 22%. Bridge bonds totaled $70 million, more than 10 times the comparable 1952 total. Public buildings, other than housing and schools, went up 62%, with a total of $64 million for January and February.

Public housing bonds, excluding the large amount that goes into refunding, showed a 3% gain over a year ago with a total of $111 million.

The high level of industrial building, and to some extent, the boom in commercial building show up in the large volume of corporate securities sold in January and February to finance new construction. The two-month total was $637 million, 13% above the comparable 1952 period.

Activity This Week

As reported to ENR
(in millions of dollars)



Contracts by type of work

	This Week	Cumulative 10 wks 1953	1952	% chge
Waterworks	$5.9	$41.9	$50.2	−16
Sewerage	4.8	74.0	36.6	+120
Bridges	55.3	132.4	47.5	+179
Highways	37.9	226.7	192.7	+18
Earthwork, waterways	2.3	70.2	69.1	+1
Buildings:				
Public	25.9	337.2	308.2	+9
Housg., pub.	6.5	163.2	170.2	−4
Housg., priv.	77.5	862.2	515.4	+67
Commercial	13.7	173.6	78.8	+120
Industrial	16.8	777.4	537.2	+45
Unclassified	27.1	324.4	276.0	+17
Total	**$273.7**	**$3,183.2**	**$2,281.9**	**+39**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost	Mar.	587.44	282.38	123.15
	Feb.	587.19	282.26	123.09
Bldg. cost	Mar.	424.89	229.68	120.78
	Feb.	425.24	229.87	120.88
Volume	Feb.	480	195	139

OFFICIAL PROPOSALS

Bids: March 18, 1953

Substructure of Sakonnet River Bridge

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ADMINISTRATION
DIVISION OF PURCHASES
NOTICE TO BRIDGE CONTRACTORS

Sealed Proposals addressed to the Division of Purchases and enclosed in an envelope endorsed "Proposal for the construction of the substructure of Sakonnet River Bridge," will be received by the Division of Purchases at the office of the State Purchasing Agent, Room 123 State House, Smith St., Providence, R. I. until 11.30 A.M. on the eighteenth day of March, 1953, at which time they will be opened and read in public.

R. I. Contract No. 5351, County of Newport, towns of Portsmouth and Tiverton, Sakonnet River Bridge No. 250 over the Sakonnet River. This project consists of the completion of all foundations between and including the west and east abutments of the main structure and its ramps, including deep water and land construction, and involving 5,997 cu. yds. of wet excavation, 3,751 cu. yds. of earth excavation 1,863 tons of steel H-piling, 10,972 cu. yds. of reinforced concrete, 6,938 cu. yds. of tremie concrete and 13,050 cu. ft. of granite facing.

Bids for the above work must be made on blanks furnished by the Department of Public Works, Division of Roads and Bridges. Plans and specifications and Special Provisions may be examined at Room 123 State House, or Room 232 State Office Building, Providence, R. I., on and after February 16, 1953 every week day except Saturdays and holidays, between the hours of 8:30 A.M. and 4:30 P.M. Blanks for submitting proposals may be obtained through the office of the State Purchasing Agent at 123 State House. A deposit of $50.00 shall be made for each set of contract documents, which deposit will be refunded if plans and specifications are returned in good condition within two weeks after the opening of bids.

A certified check or bid bond payable to the State of Rhode Island, or cash, in the amount of $55,000.000 must be furnished by each bidder, which proposal guaranty will be returned after the contract has been executed, unless forfeited in accordance with the stipulation in the proposal.

A performance bond of one hundred per cent (100%) of the contract price with a satisfactory surety company will be required of the successful bidder. The Division of Purchases reserves the right to reject any or all bids.

EMPLOYMENT LISTS: A local employment service has been designated by the R. I. Employment service to prepare the employment lists for this project. Request for men to be employed on this project shall be submitted to the District Office, 284 Thames St., New port, R. I.

WAGES OF LABOR: In conformity with the provisions of Chapters 290 and 291, General Laws, 1938, the minimum wages for a day's work paid craftsmen, teamsters and laborers shall not be less than the customary and prevailing rate of wages for a day's work in the same trade or occupation in the locality where the work is undertaken. Such a schedule of wages has been established on a minimum hourly basis, and is on file in the office of the State Department of Labor. The Contractor shall pay not less than these minimum wage rates.

SUBLETTING OR ASSIGNING THE CONTRACT: The attention of bidders is directed to the Standards and/or Special Provisions covering subletting or assigning the contract.

DEPARTMENT OF ADMINISTRATION,
DIVISION OF PURCHASES
By Franklyn A. Adams,
State Purchasing Agent

Bids: March 18, 1953

Construction of Additions to Sewage Treatment Plant

OFFICE OF THE MAYOR, CITY OF LIMA, OHIO

Contract No 33 - P - 414 January 31, 1953

Sealed proposals will be received by the Mayor of the City of Lima, Allen County, Ohio, at his office in the City Building until 12 o'clock noon, Eastern Standard Time, on Wednesday, March 18, 1953, and then publicly opened and read for the construction of additions to and modifications of the Sewage Treatment Plant of the City of Lima, Allen County, Ohio.

The work will consist principally of:

Remodeling the existing inlet diversion chamber; laying a new inlet sewer; constructing a screen chamber; detritor basin, screen, and detritor building, two (2) primary sedimentation tanks, storm water overflow, venturi pit, excess sludge thickener; three (3) aeration tanks, one (1) final sedimentation tank, chlorine contact tank, chlorination building, one (1) digester, digestion control building and sludge beds; installing mechanical equipment, connecting piping, electrical facilities, flow measuring devices, pumps, blowers, and heating and ventilating equipment; remodeling the primary sludge handling and pumping facilities; the return activated sludge handling and pumping facilities, the aeration tanks, the final sedimentation tanks, the outlet control chamber and the sludge digestion facilities, and the furnishing and installing of auxiliary equipment and piping, all in accordance with the Plans and Specifications.

Plans and pamphlet containing the Contract Documents consisting of Invitation and Information for Bidders, blank form for Bid or Proposal, form of Contract, and Specifications for the work are on file in the office of the Mayor at the City Building, Lima, Allen County, Ohio, and at the office of the Engineer, Alfred B. Anderson, 990 Broad Street, Newark 2, New Jersey, and may be inspected by prospective bidders during office hours.

The successful bidder will be required to pay the minimum wage rate established by the Department of Industrial Relations of the State of Ohio. No bidder may withdraw his proposal for a period of thirty (30) days after the date of the opening of the bids.

Plans and contract documents may be obtained at either location upon the deposit of $25.00 for each set. The deposit will be refunded if the documents are returned in good condition not later than fifteen (15) days after the award of the contract.

All bids shall be made on the blank form provided in the Contract Documents.

A certified check upon a solvent bank or satisfactory bid bond in the amount of five percent (5%), of the total bid made payable to the order of the City of Lima, Ohio, shall accompany the Proposal, but in a separate envelope. Said check or bond to be a guarantee that if the proposal is accepted a contract will be entered into and the performance of it properly secured as required.

Terms of Proposal and Sureties required are fixed by the Contract Documents.

The contract will be awarded to the lowest and best Bidder, but the right is reserved by the Mayor to reject any and all bids or to waive any informalities in favor of the City.

By direction of the Council of the City of Lima, Ohio.

Stanley A. Welker
Mayor City of Lima, Ohio

Bids: March 25, 1953

Constr. of a Sewage Treatment Works

THE MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN,
MIFFLIN COUNTY, PENNA.

Sealed bids for the construction of a SEWAGE TREATMENT WORKS, in the Borough of Lewistown, Mifflin County, Pennsylvania, will be received by the Municipal Authority of the Borough of Lewistown, in the Borough Hall, Lewistown, Pennsylvania, until 7:30 P.M. o'clock E.S.T. on March 25, 1953, at which time the proposals will be publicly opened and read aloud.

The work will be divided into five (5) contracts, designated as follows:

CONTRACT NO. 2—STRUCTURAL WORK
or
CONTRACT NO. 2A—STRUCTURAL WORK (If awarded in combination with Contract No. 3)
CONTRACT NO. 3—MECHANICAL WORK
CONTRACT NO. 4—ELECTRICAL WORK
CONTRACT NO. 5—HEATING & VENTILATING WORK
CONTRACT NO. 6—PLUMBING WORK

The STRUCTURAL WORK and MECHANICAL WORK may be awarded to one Contractor under Contracts Nos. 2A and 3 in combination.

Information for Bidders, Form of Bid, Specifications and Form of Contract may be examined at the office of the Authority, 19 Valley Street, Lewiston, Pennsylvania, or at the office of Albright & Friel Inc., Consulting Engineers, 121 South Broad Street, Philadelphia 7, Pennsylvania, and copies thereof may be obtained at either office upon a deposit of $50.00 for each set of documents.

If the documents are returned in good condition within FIVE DAYS after the opening of bids, the full amount of the deposit for one set will be returned to each actual bidder, and other deposits will be refunded with a deduction of $25.00 to defray the actual cost of production. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A certified check, or bid bond, drawn to the order of the Municipal Authority of the Borough of Lewistown, Pennsylvania, equal to five (5) per cent of the amount of bid, must be submitted with the proposal.

The proposal must be sealed and marked "SEALED PROPOSAL FOR CONSTRUCTION OF THE SEWAGE TREATMENT WORKS," addressed to the MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTON, BOROUGH HALL, LEWISTON, PENNSYLVANIA, c/o Mr. E. B. Moist, Secretary, and the contract, or contracts, under which the proposal is being submitted must also be shown thereon.

The Municipal Authority reserves the right to reject any or all bids, or waive any informality, and to award each contract to cover the construction of the Sewage Treatment Works, as may be deemed by the Municipal Authority to be to their best interests.

No bidder may withdraw his bid within forty-five (45) days after the actual date of the opening thereof.

By Order of the Municipal Authority
of the Borough of Lewistown, Mifflin
County, Pennsylvania
Date: February 18, 1953 E. B. MOIST
SECRETARY

Bids: March 17, 1953

Construction of Substructures

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m. (Eastern Standard Time), the 17th day of March, 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract:

For the construction of substructure Turnpike Section 32BC, Schuylkill River Bridge, part of the Delaware River Turnpike Extension in Upper Merion and Plymouth Townships, Montgomery County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 486.5' west of the center line between tracks of the Main Line of the Reading Railroad on the west bank of the Schuylkill River in Upper Merion Township, Montgomery County, at Turnpike Station 372+64.64 and thence in an easterly direction 1242 feet to a point approximately 152' east of the center line between tracks of Norristown Branch (P. G. & N. RR) of the Reading Railroad on the east bank of the Schuylkill River in Plymouth Township, Montgomery County, at Turnpike Station 385+06.73, a distance of 0.235 miles.

The approximate quantities of the principal items are as follows:

Class 2 Excavation	4,425 cu. yds.
Class 2A Excavation	1,500 cu. yds.
Class "A" Concrete	5,750 cu. yds.
Placing Steel Reinforcing Bars	408,000 lbs.
Cast-in-Place Concrete Piles	1,750 lin. ft.
H-Beam Bearing Piles	1,000 lin. ft.

Copies of plans, specifications, and other contract documents are on file and open to public inspection on March 3, 1953, at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania. Plans, specifications, and other contract documents will not be available before this date for inspection or for mailing to prospective bidders. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans and contract documents, for this section, exclusive of specifications, may be obtained from the Commission upon deposit of ten (10) dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and contract documents returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for specifications, drawings and contract documents.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

(Continued on page 100)

OFFICIAL PROPOSALS
(Continued from page 99)

No bids may be withdrawn for thirty (30) days after the schedule closing time for receipt of bids.
PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
February 24, 1953

Bids: March 18, 1953

Twin Bridges Over the Sandusky River

NOTICE TO BIDDERS

CONTRACTS C-38, C-38-A, AND C-38-B

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of Contracts C-38, C-38-A, and C-38-B, covering, respectively, the whole and separate portions of twin bridges over the Sandusky River in Sandusky County, Ohio. Each bidder may bid on the substructure alone, Contract C-38-A; or on the superstructure alone, Contract C-38-B; or on both the substructure and superstructure, Contract C-38; or on Contract C-38 together with either or both of Contracts C-38-A and C-38-B.

The work covered by Contract C-38-A consists generally of the construction of the substructure for the aforesaid twin bridges. Substructure units for each bridge are the west abutment, three river piers, five land piers, and the east abutment.

Approximate quantities of the major items of materials for Contract C-38-A are as follows:

Dry and Wet Excavation	15,140 cu. yd.
Cast-In-Place Reinforced Concrete Piles	4,700 feet
Class "C" Concrete for Structures	9,706 cu. yd.
Class "E" Concrete for Structures	2,950 cu. yd.
Reinforcing Steel	580,000 pounds

The work covered by Contract C-38-B consists generally of the construction of the superstructure for the aforesaid twin bridges, total length 915'-6" c-c of bearings of abutments, each bridge consisting of nine simple deck-girder spans (1 @ 100'-9"; 7 @ 102'; and 1 @ 100'-9").

Approximate quantities of the major items of materials for Contract C-38-B are as follows:

Class "C" Concrete for Structures	2,240 cu. yd.
Reinforcing Steel	540,000 pounds
Structural Steel in Girder Spans	3,340,000 pounds
Railing	3,900 feet

The work covered by Contract C-38 is the combination of the construction as above generally described for Contracts C-38-A and C-38-B.

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1	$5.00
Plans for substructures of Sandusky River Bridges	$1.25
Plans for superstructure thereof	$2.50

Forms or copies of Proposals for each of Contracts C-38, C-38-A, and C-38-B; of the Affidavit which must accompany any such Proposal; of this Notice to Bidders; of the Special Provisions applying to said contracts; of the Contracts to be entered into with the (or each) successful bidder; and of the Contract Bond to be furnished with such contract will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office, on and after March 3, 1953. One set (or, if requested, a reasonable additional number) of said documents will be furnished without charge to each purchaser of either of the aforesaid sets of Plans.

All proposals must be on the forms prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each proposal must be accompanied by a certified check on a solvent bank, payable to the order of the Ohio Turnpike Commission, in an amount not less than 5% of the total amount bid. If a bidder bids on Contract C-38 and also on either or both of Contracts C-38-A and C-38-B, one certified check will suffice, if an amount not less than 5% of the total amount bid by him on Contract C-38. If a bidder bids on both of Contracts C-38-A and C-38-B, but not on Contract C-38, he shall submit separate certified checks with each bid. The Commission may at any time cash any such check. Each such check, or the proceeds thereof, will be held by the Commission as a guaranty that, if any proposal guaranteed thereby is accepted, a contract will be entered into and the performance of the proposal secured. Each such check, or the proceeds thereof, will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications; provided, that if there be a forfeiture, it shall be of an amount equal to 5% of the total amount bid in the proposal with respect to which the forfeiture occurs, and any excess thereover will be returned to the bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, March 18, 1953, in the offices of the Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where all proposals will be publicly opened and read.

If the bid of the lowest and best bidder for Contract C-38 is lower and better than the bids, taken together, of the lowest and best bidders for Contracts C-38-A and C-38-B, respectively, Contract C-38 will be awarded (if any award be made) to said lowest and best bidder for it, and no award will be made of Contracts C-38-A and C-38-B. If the converse be true, no award will be made of Contract C-38, and Contracts C-38-A and C-38-B will be awarded to the lowest and best bidders for them, respectively. Since the Commission reserves the right to reject any or all proposals, it may award either Contract C-38-A or Contract C-38-B to the lowest and best bidder therefor, and make no other award, or it may make no award of any of the contracts. To qualify for award, a bidder's proposal must comply with the prescribed requirements.

The Commission reserves the right to waive technicalities.

DATED: February 21, 1953
OHIO TURNPIKE COMMISSION

Bids: March 26, 1953

General Contract Work

The Board of Education, Central School District #1 of the Towns of New Lebanon, Canaan, and Stephentown, Columbia County, State of New York, will take:

Separate sealed bids for the General Contract, Plumbing, Heating & Ventilating, and Electric Work for the construction of the Addition and Alteration to the New Lebanon Central School Building, to be erected at Lebanon Springs, Columbia County, State of New York, which bids will be received by the Board of Education, Central School District #1 of the Towns of New Lebanon, Canaan and Stephentown, Columbia County, State of New York, at the office of the Principal of the New Lebanon Central School at Lebanon Springs, Columbia County, State of New York until 1:30 o'clock p.m. (E.S.T.) March 26, 1953, and which proposals will be publicly opened and read at 2:00 o'clock p.m. (E.S.T.) at the School Building, Lebanon Springs, Columbia County, State of New York.

The Information for Bidders, Forms of Proposal, Forms of Contract, Bid and Performance Bonds, Drawings and Specifications may be examined at the office of Hampson & Fisher, Architects, at 30 Backman Avenue, Pittsfield, Massachusetts, and which drawings and specifications will be furnished to prospective bidders as follows:

1. General Contract Drawings and Specifications upon payment of Fifty Dollars ($50.00) for each complete set.
2. Plumbing, Heating & Ventilating, and Electric Drawings and Specifications upon payment of Thirty-five Dollars ($35.00) for each complete set, as a deposit.
3. Deposit payments shall be in cash or check made payable to Hampson & Fisher, Architects, 30 Backman Ave., Pittsfield, Mass.
4. Upon receipt of cash or checks the respective drawings and specifications will be sent to the prospective bidder via Railway Express, charges collect, immediately upon receipt of the above deposit payment.
5. All unsuccessful bidders, upon the return to the Architects of the respective drawings and specifications promptly and in good condition within ten (10) days of the date of the closing of bids, will be refunded his deposit payment.
6. Any prospective bidder who secures drawings and specifications, but who does not submit a proposal for the work in his line will forfeit his deposit payment.
7. For the convenience of prospective bidders, subbidders, and material suppliers, Drawings & Specifications will be on file at the following locations:
   (a) Dodge Reports
   119 West 49th St., New York, N. Y.
   (b) Albany Builders Exchange
   372 Hudson Avenue, Albany, N. Y.
8. The Board of Education reserves the right to waive any informalities in or to reject any or all bids.
9. Each Bidder must deposit with his proposal, bid security in the amount of five per cent (5%) of the Base Bid in the form of and subject to the conditions provided in the Information for Bidders.
10. Attention of all Bidders is particularly called to the requirements as to the conditions of employment to be observed and to the minimum wage rates to be paid under the respective contracts.
11. The preliminary estimated cost of the work to be performed is as follows:

(a) General Contract	$210,000.00
(b) Plumbing	15,000.00
(c) Heating & Ventilating	60,000.00
(d) Electric Work	25,000.00

12. No bidder may withdraw his proposal within forty-five (45) days after the actual date of the opening thereof.
13. The contracts for the General Contract, Plumbing, Heating & Ventilating, and Electric Contracts will be financed in whole or in part by the Central School District #1 of the Towns of New Lebanon, Canaan, and Stephentown, in Columbia County, State of New York.

Board of Education, Central School District #1 of the Towns of New Lebanon, Canaan, and Stephentown, in Columbia County, State of New York.
February 23, 1953

Bids: March 25, 1953

NOTICE TO CONTRACTORS
FEDERAL AID PROJECT NO. U.-208(6) & (7)
ETOWAH COUNTY, ALABAMA

Sealed bids will be received by the State Highway Director at the City Hall in Gadsden, Alabama, until 10:00 o'clock A.M., March 27, 1953, and at that time publicly opened for constructing a Bridge over the Coosa River in Gadsden, Alabama.

The entire project shall be completed in three hundred (300) working days.

The major items of work are approximately as follows:

4,789 Cu. Yds. Bridge Concrete
12,732 Lin. Ft. Steel Piling (10" B.P. @ 42#)
730,296 Pounds Steel Reinforcement
1 Lump Steel Superstructure (Approximately 1,726,666#)
100,950 Cu. Yds. Borrow (In Place) (For fill at Bridge Ends)

Certified check or Bid Bond for ten thousand dollars ($10,000.00) made payable to the Alabama State Highway Department must accompany each bid as evidence of good faith.

The minimum wage paid to all Skilled, Intermediate and Unskilled labor employed on this contract shall be as set forth in Special Provisions.

The proposed work shall be performed in conformity with the rules and regulations for carrying out the Federal Highway Act. Plans and Specifications are on file in the office of the State Highway Department at Montgomery 4, Alabama.

Plans, proposals and specifications may be obtained only upon payment of a deposit of ten dollars ($10.00) made payable to the Alabama State Highway Department. In accordance with Section 12 of Act No. 492 of 1947 Legislature of Alabama, proposals will be issued only to qualified contractors or their authorized representatives, upon requests that are received before ten o'clock A.M., on the day previous to the day of opening of bids.

Prequalification required. Alabama law requires that all bidders be qualified with State Highway Department; contractors desiring forms for prequalification should write W. G. Pruett, Director, State Highway Department, Montgomery, Alabama, immediately.

The right to reject any or all bids is reserved.

W. G. PRUETT,
Highway Director

OFFICIAL PROPOSALS

Bids: March 25, 1953

NOTICE TO BIDDERS

Contracts C-30, C-30-A, and C-30-B

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of Contracts C-30, C-30-A, and C-30-B, covering, respectively, the whole and separate portions of twin bridges over the Huron River in Erie County, Ohio. Each bidder may bid on the substructure alone, Contract C-30-A; or on the superstructure alone, Contract C-30-B; or on both the substructure and superstructure, Contract C-30; or on Contract C-30 together with either or both of Contracts C-30-A and C-30-B.

The work covered by Contract C-30-A consists generally of the construction of the substructure for the aforesaid twin bridges. Substructure units for each bridge are the west abutment, two river piers, six land piers, and the east abutment.

Approximate quantities of the major items of materials for Contract C-30-A are as follows:

Dry and Wet Excavation 13,400 cubic yards
Cast-in-Place Reinforced Concrete Piles ..... 4,100 feet
Class "C" Concrete for Structures ..... 6,860 cubic yards
Class "E" Concrete for Structures ..... 2,400 cubic yards
Reinforcing Steel ..... 515,000 pounds

The work covered by Contract C-30-B consists generally of the construction of the superstructure for the aforesaid twin bridges, total length 1107'-11" c-c of bearings of abutments, each bridge consisting of nine simple deck-girder spans (1 @ 127'-9"; 6 @ 129'; 1 @ 103'-8½", and 1 @ 102'-5½").

Approximate quantities of the major items of materials for Contract C-30-B are as follows:

Class "C" Concrete for Structures .....2,680 cubic yards
Reinforcing Steel ..... 650,000 pounds
Structural Steel in Girder Spans .....4,720,000 pounds
Railing ..... 4,674 feet

The work covered by Contract C-30 is the combination of the construction as above generally described for Contracts C-30-A and C-30-B.

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1..... $5.00
Plans for substructures of Huron River Bridges $1.25
Plans for superstructures thereof.... $2.50

Forms or copies of Proposals for each of Contracts C-30, C-30-A, and C-30-B; of the Affidavit which must accompany any such proposal; of this Notice to Bidders; of the Special Provisions applying to said contracts; of the Contracts to be entered into with the (or each) successful bidder; and of the Contract Bond to be furnished with such contract will be furnished upon request, and without charge to any interested person at the aforesaid Chief Engineer's office, on and after March 10, 1953. One set (or, if requested, a reasonable additional number) of said documents will be furnished without charge to each purchaser of either of the aforesaid set of Plans.

All proposals must be on the forms prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each proposal must be accompanied by a certified check on a solvent bank, payable to the order of the Ohio Turnpike Commission, in an amount not less than 5% of the total amount bid. If a bidder bids on Contract C-30 and also on either or both of Contracts C-30-A and C-30-B, one certified check will suffice, if in an amount not less than 5% of the total amount bid by him on Contract C-30. If a bidder bids on both of Contracts C-30-A and C-30-B, but not on Contract C-30, he shall submit separate certified checks with each bid. The Commission may at any time cash any such check. Each such check, or the proceeds thereof, will be held by the Commission as a guaranty that, if any proposal guaranteed thereby is accepted, a contract will be entered into and the performance of the proposal secured. Each such check, or the proceeds thereof, will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications; provided, that if there be a forfeiture, it shall be of an amount equal to 5% of the total amount bid in the proposal with respect to which the forfeiture occurs, and any excess thereover will be returned to the bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, March 25, 1953, in the offices of the Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where all proposals will be publicly opened and read.

If the bid of the lowest and best bidder for Contract C-30 is lower and better than the bids, taken together, of the lowest and best bidders for Contracts C-30-A and C-30-B, respectively, Contract C-30 will be awarded (if any award be made) to said lowest and best bidder for it, and no award will be made of Contracts C-30-A and C-30-B. If the converse be true, no award will be made of Contract C-30, and if awarded, Contracts C-30-A and C-30-B will be awarded to the lowest and best bidders for them, respectively. Since the Commission reserves the right to reject any or all proposals, it may award either Contract C-30-A or Contract C-30-B to the lowest and best bidder therefor, and make no other award, or it may make no award of any of the contracts. To qualify for award, a bidder's proposal must comply with the prescribed requirements.

The Commission reserves the right to waive technicalities.

OHIO TURNPIKE COMMISSION
DATED February 21, 1953
OSJ-2/21, 28/53

Bids: March 25, 1953

Construction of a Clay Pipe

THE MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN, MIFFLIN COUNTY, PA.

Sealed proposals for Contract No. 1, for furnishing all plant, labor, and materials, for the construction of approximately 29,750 lineal feet of 6", 8", 10", 12", 15" and 24" vitrified clay pipe; approximately 800 lineal feet of 8", 10", 12" and 14" cast iron pipe; and approximately 630 lineal feet of steel pipe, for branch and intercepting sanitary sewers, together with manholes, fittings, miscellaneous appurtenances, concrete piers and concrete cradle, in the Borough of Lewistown, Mifflin County, Pennsylvania, will be received by the Municipal Authority of the Borough of Lewistown, at Borough Hall, Lewistown, Pennsylvania, until 7:30 P.M. o'clock E.S.T. on March 25, 1953, at which time the proposals will be publicly opened and read aloud.

Respective locations of work to be performed under Contract No. 1 are herewith listed, in same manner as in the Form of Proposal. Each bidder shall bid on Parts No. I to No. XI inclusive, since the work will be awarded in its entirety to one bidder only.

PART NO. I—JACK'S CREEK INTERCEPTOR.

PART NO. II—JUNIATA RIVER INTERCEPTOR.

PART NO. III—KISHACOQUILLAS CREEK INTERCEPTOR.

PART NO. IV—LAKE PARK INTERCEPTOR.

PART NO. V—UPPER KISHACOQUILLAS CREEK INTERCEPTOR.

PART NO. VI—SUSQUEHANNA AVENUE INTERCEPTOR.

PART NO. VI—(ALT.)—SUSQUEHANNA AVE. INTERCEPTOR (ALTERNATE ROUTE).

PART NO. VII—SANITARY SEWAGE SEPARATION FROM EXISTING SEWERS ON 4TH & 5TH STS., SEWERS LOCATED ON 4TH & 5TH STS., ALLEY BETWEEN 4TH & 5TH, AND ALLEY & R/W BETWEEN 4TH ST. & JUNIATA ST.

PART NO. VIII—SANITARY SEWER EXTENSIONS FROM WALNUT ST. TO M.H. #19.

PART NO. IV—OLD TURNPIKE SEWER EXTENSION ACROSS CREEK TO M.H. #57.

PART NO. X—SANITARY SEWER EXTENSION AT WALNUT & SHAW AVENUES.

PART NO. XI—EXTENSION OF WAYNE & JUNIATA ST., SEWERS FROM EXISTING 18" STORM DRAIN TO PROPOSED 10" SUSQUEHANNA AVE. SEWER FROM SILK MILL.

PART NO. XI (ALT.)—EXTENSION OF WAYNE & JUNIATA ST. SEWERS FROM EXISTING 18" STORM SEWER TO ALTERNATE ROUTE 10" V.P. INTERCEPTOR FROM SILK MILL.

Information for Bidders, Form of Bid, Specifications and Form of Contract may be examined at the office of the Authority, 19 Valley Street, Lewistown, Pennsylvania, or at the office of Albright & Friel Inc., 121 South Broad Street, Philadelphia 7, Pennsylvania, and copies thereof may be obtained at either office, upon a deposit of THIRTY DOLLARS ($30.00) for each set of documents. If the documents are returned in good condition within five (5) days after the opening of bids, the full amount of the deposit for one (1) set will be returned to each actual bidder, and other deposits will be refunded with a deduction of FIFTEEN DOLLARS ($15.00) for each set, to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A CERTIFIED CHECK or BID BOND, drawn to the order of the MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN, PENNSYLVANIA, equal to five per cent (5%) of the amount of the bid, must be attached to the proposal.

The proposal must be sealed and marked "SEALED PROPOSAL FOR CONSTRUCTION OF SANITARY SEWERS, CONTRACT NO. 1", addressed to the MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN, BOROUGH HALL, LEWISTOWN, PENNSYLVANIA, c/o MR. E. B. MOIST, SECRETARY.

The Municipal Authority reserves the right to reject any and/or all bids.

No bid may be withdrawn within forty-five (45) days after the actual date of the opening thereof.

By order of the Municipal Authority of the Borough of Lewistown, Mifflin Co., Penna.

E. B. MOIST
Date: February 18, 1953 SECRETARY

Bids: March 17, 1953

Route 4 (1927)—RT. U.S. 9 (1953), Sec. 48

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Route 4 (1927)—Route U.S. 9 (1953)—Section 48, Absecon to Mullica River, Widening and Resurfacing, City of Absecon, Galloway Township, and City of Port Republic, Atlantic County; and Drainage Improvement at Barnegat High School, Union Township, Ocean County. Length 8.875 miles. The principal items of construction are

Estimated:
5,000 cu. yds. Roadway Excavation—Earth
43,222 sq. yds. Reconstructed Gravel Shoulder
17,888 sq. yds. 8" Concrete Base Course
11,500 tons Bituminous Concrete Surface
2,542 lin. ft. Rein. Concrete Culvert Pipe

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, March 17, 1953, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J. and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: March 17, 1953

Route 3, Section 2-G, Secaucus

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:
Construction of Pedestrian Overpass and Landscaping on Route 3, Section 2-G, in Secaucus, Hudson County. The principal items of construction are:

Bridge Items

Estimated:
134 cu. yds. Concrete in Structures
8,590 lbs. Reinforcement Steel in Structures
27,250 lbs. Structural Steel
397 lin. ft. Pipe Railing

Roadway Items

283 sq. yds. Concrete Sidewalk, 4" thick
4 units Metal Picket Fence
860 units Cockspur Hawthorne, 2' to 3' high
3,300 sq. yds. Fertilizing and Seeding

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, March 17, 1953, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidders and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: May 5, 1953

Invitation to Bid for Veterans Hospital, Manila, Philippines

Quoted hereunder is an invitation for bids by the Honorable Ramon Magsaysay, Secretary of National Defense, Republic of the Philippines, which is self-explanatory:

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF NATIONAL DEFENSE
Camp Murphy, Quezon City
February 11, 1953

INVITATION FOR BIDS

Sealed proposals will be received at the Office of the Secretary of National Defense, Camp Murphy, Quezon City, until 10:00 A.M. May 5, 1953 and then publicly opened for the furnishing all materials, labor and plant, and constructing complete the Buildings and Utilities (Part I) of the "Proposed Veterans Hospital" at Hilaga Avenue, Diliman, Quezon City, Philippines.

This project consists of one Administration Bldg. No. 1 (approximately 630,000 cu. ft.); one Clinical Bldg. No. 2 (approximately 665,000 cu. ft.); one Surgical Bldg. No. 3 (approximately 920,000 cu. ft.); TB Kitchen, Dining & Treatment Bldg. No. 6 (approximately 410,000 cu. ft.); TB Nursing Bldg. No. 7 (approximately 815,000 cu. ft.); TB Nursing Bldg. No. 8 (approximately 780,000 cu. ft.); GM Kitchen & Dining Bldg. No. 10 (approximately 560,000 cu. ft.); GM Nursing Bldg. No. 11 (approximately 795,000 cu. ft.); GM Nursing Bldg. No. 12 approximately (670,000 cu. ft.); Guardhouse Bldg. No. 19 (approximately 5,500 cu. ft.); Power Plant, Boiler & Morgue (approximately 150,000 cu. ft.); Incinerator Bldg. No. 26 (approximately 9,500 cu. ft.); Connecting Corridors from Bldg No. 6 to Bldgs. Nos. 7 & 8, from Bldg. No. 10 to Bldgs. Nos. 11 & 12, and from Bldg. No. 3 to Bldg. No. 11 (approximately 329,000 cu. ft.); Fence and Gate; Flagpole (approximately 70 feet high); one 100,000 gallons steel water tank and tower and two (2) pump houses; one Sewage disposal plant; all mechanical and electrical works included therein; installation of medical dental, laboratory, sterilizing and dietetic equipment included therein; Outside distribution systems (light, water, steam, sewer and fire hydrants); Roads, walks and drainage; Grading and landscaping; electric elevators; and refrigeration system. The project is located on a site with an area of about 55 hectares or approximately 136 acres. The buildings in general, will have concrete foundations, reinforced concrete framework and exterior walls, reinforced concrete floors, and built-up roofs, all in accordance with drawings and specifications.

Separate bids will be received for:

(I) General Construction including grading, roads, walks and drainage, outside distribution systems, & Mechanical and Electrical works & equipment except electric elevator and refrigeration system. For bidding purposes, this item is divided into the following groups:

Group I—Bldgs. Nos. 1, 2, and provisions for temporary field office.

Group II—Bldg. No. 3 and connecting corridor to Bldg. No. 11.

Group III—Bldg. Nos. 6, 7, and connecting corridors from Bldg. No. 6 to Bldg. Nos. 7 & 8.

Group IV—Bldg. Nos. 10, 11 and conecting corridors from Bldg. No. 10 to Bldgs. Nos. 11 & 12.

Group V—Bldg. Nos. 8 & 12.

Group VI—Waterworks and sewerage system.

Group VII—Roads, walks, drainage; grading & landscaping (Sodding); Bldg. Nos. 19, 22 & 26; Fence and Gate; Flagpole.

Group VIII—One-200 KVA Generator & Outside Electrical Distribution system including inside wirings and fixtures for signal communication telephone and fire alarm system; and Boiler plant and Outside Steam Distribution system.

Lump sum bids covering one or more groups or a single bid for the entire project will be considered.

(II) Electric Elevators; and (III) Refrigeration System; all set forth in the proposal sheet.

Envelopes containing proposals should be sealed and plainly marked "Proposal for the construction of the proposed Veterans Hospital," to be opened at 10:00 A.M., May 5, 1953.

Instructions to bidders, general conditions, special condition, information for bidders, accident prevention, general information, proposal forms, plans and specifications are available for issue at the office above-named to prospective bidders who have filed a satisfactory "Statement of Facts," and are citizens of the Philippines or of the United States of America. A proposal by a bidder who has not been issued plans and specifications will be rejected. Additional information will be furnished on request.

The operational work accomplished on this project is subject to the concurrence by the United States Administrator of Veterans Affairs or his duly authorized representative, who will not, however, be a party of the contract.

A deposit of Three Hundred and Fifty Pesos (P350.00) for the General Contractor and Twenty Pesos (P20.00) each for the Elevator and Refrigeration Contractors, shall be required for the plans and specifications issued to them which must be returned within twenty (20) days from the opening of bids by those taking part in the public bidding and within five (5) days of those who fail to participate, otherwise the deposit will be forfeited to the Government.

Bidders or authorized representatives are requested to be present at the time stated above, when bids for the work will be opened.

Attention is invited to the provisions of Republic Act 602, to which all contractors on Government projects are amenable.

Bids must be accompanied by a proposal bond in the form of cash, certified check, surety bond, or certificates of fixed deposit issued by any reputable banking institution payable to the Secretary of National Defense, in the sum of ten percent (10%) of the bid.

Qualified American contractors will be permitted to submit proposals for the work on the same basis as local contractors. Bids must be registered and airmailed in sufficient time so as to reach the Office of the Secretary of National Defense on or before 10:00 A.M., May 5, 1953. Bids not received on the time and date indicated but have been stamped in the Post Office at least seven (7) days prior to the opening of the bids, in case they are mailed in the US or other foreign countries, or at least two (2) days if they are mailed in the Philippines, will be considered.

The right is reserved to reject any or all bids, to waive informality therein, or to accept such bids as may be considered most advantageous to the Government, or to enter into a negotiated contract with any bidder whose terms are most advantageous to the Government.

Address all communications to "The Secretary of National Defense, Camp Murphy, Quezon City, Philippines."

RAMON MAGSAYSAY
Secretary of National Defense

This proposed Veterans Hospital will be located at Diliman, Quezon City, Philippines, and is being built under Public Law 865, 80th U. S. Congress.

Republic Act 602 mentioned above refers to the minimum wage law which makes mandatory a minimum wage of four (4) pesos a day ($2.00) as the minimum wage for all laborers.

In connection with this project, American contractors residing in the United States or in other foreign countries if awarded the contract, will be allowed certain exemptions as follows:

1. Exemption from the 17% exchange tax of remittance covering machinery, equipment and materials and of the withdrawal of capital and profits from the Philippines as quoted hereunder:

   "The Monetary Board, in its Resolution No. 723 adopted during the meeting on October 11, 1951, decided that in view of the fact that the dollar requirements of the Veterans Hospital are being freely provided by the United States Government under the Rogers Act, remittances for machinery, equipment and materials for use exclusively in the construction of this veterans hospital and made out of dollar deposits of the Department of National Defense with the Central Bank under the Rogers Act are not subject to the exchange tax.

   With regard to capital brought into the Philippines by a foreign contractor participating in the construction of the hospital and specifically for use only in connection therewith, the Board decided that said capital, upon termination of the contract, may be withdrawn in full and likewise not subject to the exchange tax. Profits earned by the contractor from his participation in the construction of the hospital only and from no other activity, may also be permitted to be withdrawn without payment of the exchange tax."

2. Under the provisions of Art. 28 of the Agreement between the Government of the United Staes of America and the Republic of the Philippines relative to the construction and equipping of hospital for veterans, the exemption of taxes covers compensating tax imposed in Section 190 of the National Internal Revenue Code (7% of landed cost) income and residence taxes and the Import duty of 2%.

However, all contractors, local or foreign, are subject to the following taxes:

a. Fixed tax of P10.00 a year, payable in advance before engaging in business as contractor in the Philippines.

b. The percentage tax of 3% of the gross quarterly receipts if the same exceed P200.00 a quarter.

One (1) set of plans and specifications for this hospital are available at the Philippine Embassy, 1617 Massachusetts Avenue, N.W., Washington, D. C., and the Philippine Consulate General, 212 Stockton Street, San Francisco, California. Another set at the Philippine Embassy is available for loan for a 72 hour period upon deposit of $175.00.

No telephone inquiries will be entertained on this matter and contractors interested in either studying these plans or copying them shall apply in writing to the Armed Forces Attache, Philippine Embassy, 1617 Massachusetts Avenue, N.W., Washington, D. C., who shall set appointments for the studying or the loan of these plans.

CARLOS J. ALBERT
Captain, PN, AFP
Armed Forces Attache

OFFICIAL PROPOSALS

March 18, 1953

Constr. of Five Overpasses

NOTICE TO BIDDERS
CONTRACT NO. C-7

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of Contract No. C-7. The work to be performed under this Contract involves the construction of five overpasses each consisting of two bridge structures; one underpass consisting of a single bridge structure; three reinforced concrete box culverts; excavation; furnishing, placing and compacting borrow excavation materials in embankment; concrete and metallic pipe culverts; concrete and bituminous pavement; and incidental work in connection with the construction of the Ohio Turnpike, Section 7, between a line located 110 feet east of Warren Road, centerline Station 215+00, and a line located 1140 feet west of Lintz-Town Line Road, centerline Station 424+30, in Trumbull County, Ohio.

Principal items of work include:

Borrow	1,900,000 cu. yds.
Excavation and Grading	62,000 cu. yds.
Concrete	9,500 cu. yds.
Reinforcement Steel	1,140,000 pounds
Structural Steel	2,430,000 pounds
Cast-in-Place Concrete Piles	16,000 lin. ft.
Metal Bridge Railing	4,300 lin. ft.
Pavement, Concrete and Bituminous	188,000 sq. yds.
Pipe Drains	11,600 lin. ft.

Copies of the Plans, Specifications, and all other Contract Documents for said contract will be available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio, not later than March 3, 1953. On or after the aforesaid date, these documents may be purchased from the Chief Engineer of the Ohio Turnpike Commission for the following sums, which sums are nonreturnable:

General Specifications, per set	$5.00
Plans, including soil profiles and boring logs, and other Contract Documents (excluding General Specifications), per set	15.00
Cross Sections, per set	25.00

All proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each proposal must be accompanied by a certified check on a solvent bank, payable to the order of the Ohio Turnpike Commission, in an amount not less than 5% of the total amount bid in such proposal. Said certified check will be held by the Commission as a guarantee that, if the proposal is accepted, a contract will be entered into and the performance of the proposal will be secured.

All bids must be received on or before 10:00 o'clock A.M., Eastern Standard Time, March 18, 1953 in the offices of the Ohio Turnpike Commission, 361 East Broad Street, Columbus, Ohio.

Immediately after the closing of bids, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where the bids will be publicly opened and read.

The award of the contract, if it be awarded, will be to the lowest and best bidder whose proposal complies with all prescribed requirements. The Commission reserves the right to reject any and all proposals and to waive technicalities.

DATED February 21, 1953
OHIO TURNPIKE COMMISSION
OSJ—2/21, 28/53

Bids: March 18, 1953

Constr. of Grading, Drainage, Structures

NOTICE TO BIDDERS
CONTRACT C-2, CONTRACT C-3, AND CONTRACT C-2 & 3

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of Contract C-2, Contract C-3, and Contract C-2 & 3, which last contract is a combination of Contract C-2 and Contract C-3 in one single contract. The work covered by these contracts consists generally of the construction of grading, drainage, structures, and paving of approximately 5.3 miles in section 2 and 4.7 miles in section 3 or a total of 10.0 miles of the Ohio Turnpike beginning at Western Reserve Road at Turnpike centerline station 734+70 in Mahoning County and extending eastwardly to a point about 500' east of South Range-Center Road at Turnpike centerline station 1015+00 in Mahoning County (section 1); and beginning at a point approximately 3,400 feet west of Raccoon Road at Turnpike centerline station 489+30 in Mahoning County and extending eastwardly to a point about 250 feet east of Western Reserve Road at Turnpike centerline station 737+00 in Mahoning County and the construction of engineer's office buildings and facilities on or near the sites of the work.

The principal structures to be built under Contract C-2 are one reinforced concrete culvert, seven highway bridges and one railroad bridge. Two of the highway bridges are plate girder structures of three spans each and the other five are steel beam bridges, one of one span, two of three spans, one of four spans and one of five spans. The railroad bridge is a half through plate girder structure of five spans. The abutments for six of the bridges are on steel piles, and for the other two on spread footings. All bents are on spread footings.

The principal structures to be built under Contract C-3 are four reinforced concrete culverts and six steel beam bridges of from three to five spans each, supported on reinforced concrete abutments and bents. The abutments of five of these bridges are on steel piles and for the other bridges are soil bearing. The bents for four of these bridges are to be spread footings and for the other two bridges are to be on steel piles.

Approximate quantities of the major items of materials for Contract C-2 are as follows:

Roadway Excavation	1,930,000 cu. yd.
Structural Concrete	7,300 cu. yd.
Reinforcing Steel	1,061,000 pounds
Fabricated Structural Steel	2,635,000 pounds
10" reinforced Concrete Pavement	169,000 sq. yd.

Approximate quantities of the major items of materials for Contract C-3 are as follows:

Roadway Excavation	1,028,000 cu. yd.
Structural Concrete	10,400 cu. yd.
Reinforcing Steel	1,348,000 pounds
Fabricated Structural Steel	2,287,000 pounds
10" reinforced Concrete Pavement	128,000 sq. yds.

The work covered by Contract C-2 & 3 is the combination of the construction as above generally described for Contracts C-2 and C-3.

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1	$ 5.00
Plans, including soil profiles and boring legs, and other Contract Documents (excluding General Specifications) per set per Section	$15.00
Cross Sections, per set per Section	$25.00

Forms or copies of Proposals for each of Contracts C-2 & 3, C-2 and C-3; of the Affidavit which must accompany any such proposal; of this Notice to Bidders; of the Special Provisions applying to said contracts; of the Contract to be entered into with the (or each) successful bidder; and of the Contract Bond to be furnished with such contract will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office on and after March 3, 1953. One set (or, if requested, a reasonable additional number) of said documents will be furnished without charge to each purchaser of either of the aforesaid sets of plans.

All proposals must be on the forms prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each proposal must be accompanied by a certified check on a solvent bank, payable to the order of the Ohio Turnpike Commission, in an amount not less than 5% of the total amount bid. If a bidder bids on Contract C-2 & 3 and also on either or both of Contracts C-2 and C-3, one certified check will suffice, if an amount not less than 5% of the total amount bid by him on Contract C-2 & 3. If a bidder bids on both of Contracts C-2 and C-3, but not on Contract C-2 & 3, he shall submit separate certified checks with each bid. The Commission may at any time cash any such check. Each such check, or the proceeds thereof, will be held by the Commission as a guaranty that, if any proposal guaranteed thereby is accepted, a contract will be entered into and the performance of the proposal secured. Each such check, or the proceeds thereof, will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications; provided that if there be a forfeiture, it shall be of an amount equal to 5% of the total amount bid in the proposal with respect to which the forfeiture occurs, and any excess thereover will be returned to the bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, March 18, 1953, in the offices of the Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where all proposals will be publicly opened and read.

If the bid of the lowest and best bidder for Contract C-2 & 3 is lower and better than the bids, taken together, of the lowest and best bidders for Contracts C-2 and C-3 respectively, Contract C-2 & 3 will be awarded (if any award be made) to said lowest and best bidder for it, and no award will be made of Contracts C-2 and C-3. If the converse be true, no award will be made of Contract C-2 & 3 and, if awarded, Contracts C-2 and C-3 will be awarded to the lowest and best bidders for them, respectively. Since the Commission reserves the right to reject any or all proposals it may award either Contract C-2 or Contract C-3 to the lowest and best bidder therefor, and make no other award, or it may make no award of any of the contracts. To qualify for award, a bidder's proposal must comply with the prescribed requirements.

The Commission reserves the right to waive technicalities.

DATED February 21, 1953
OHIO TURNPIKE COMMISSION
CD 2/21, 28/53

Bids: March 19, 1953

Filter Service for Air-Conditioning Units

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 179
PROPOSAL NO. 39

Sealed proposals for furnishing all labor, material and equipment to provide complete air filter service for all air-conditioning units at the Port Authority Bus Terminal, 40th St. and 8th Ave and the New York Union Motor Truck Terminal, 325 Spring St., New York City will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 8th Ave., New York 11, until 11:00 A.M. Thursday, March 19, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

U. S. Government

GOVERNMENT OF THE DISTRICT OF COLUMBIA, DIRECTOR OF HIGHWAYS, D. C., February 26, 1953. SEALED PROPOSALS will be received in Room 404, Library Building, 499 Pennsylvania Ave., N.W., Washington 1, D.C., until 2:00 P.M., April 2, 1953, EASTERN STANDARD TIME, and then publicly opened and read for constructing A BRIDGE OVER KINGMAN LAKE AND ANACOSTIA RIVER ON EAST CAPITOL STREET EXTENSION. The bridge will consist of fifteen (15) plate girder spans of approximately one hundred twenty feet (120') each for six (6) lanes of traffic with reinforced concrete floor and reinforced concrete abutments and piers on steel piles. Approximate quantities of major items are: 13,730 cubic yards excavation, 51,830 lineal feet steel H piles, 3,760 cubic yards tremie concrete, 6,500 cubic yards substructure concrete, 4,800 cubic yards superstructure concrete, 1,700,000 pounds reinforcing steel, 3,875,000 pounds structural silicon steel, 4,100,000 pounds structural carbon steel and 4,060 lineal feet of handrail. Bids will be received for three (3) alternates involving either the entire structure, the substructure only, or the superstructure only. Proposal forms, plans and specifications may be obtained from the Secretary, Contract Board, D.C., Room 406, Library Building, 499 Pennsylvania Avenue, N.W., Washington 1, D.C., by general contractors only, upon deposit of a certified check for each set, made payable to the Collector of Taxes, D. C., in the amount of FIFTY DOLLARS ($50.00). Telephone National 8-6000, Extension 2378.

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(Continued on page 108)

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P-6865, Engineering News-Record
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(Continued from page 106)

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HIGHLY QUALIFIED appraisal engineer with ample and intensive experience on public utilities, etc.; also strong, attractive personality; ability to handle discussions with bankers and to conduct negotiations with clients of a large engineering company. PW-7044, Engineering News-Record.

EXPERIENCED C.E., all phases general contracting in N.Y.C. desires position with building contractor. Further details by interview. PW-6867, Engineering News-Record.

CIVIL-STRUCTURAL Engineer: 20 years. Municipal, industrial, commercial buildings; highways, bridges, special structures. Planning, supervision of design and construction, public relations and promotion. Engineering organization manager for 8 years. PW-6851, Engineering News-Record.

ENGINEERING EXECUTIVE, North American, graduate U. S. Naval Academy (Annapolis) 1935, PG at MIT; extended experience in management, mechanical and electrical design, sales engineering, residential design, and construction. Six years in Venezuela; speaks Spanish fluently. Age 39, married with three children. Position in South America preferred but interested in all. PW-6681, Engineering News-Record.

ENGINEERING MANAGER background in complete Plant Design, preparation and analysis of budgets for industrial installations. Bulk of experience in detergents, Pharmaceuticals and organic chemicals. PW-6457, Engineering News-Record.

EXECUTIVE ENGINEER, P.E., N. Y. State and others, 50, experienced administration engineering projects. Chemicals, petroleum, rubber, hydro-electric plants. Structural hydraulic, mechanical, industrial and related problems. Design, construction. Past affiliations consulting and industrial. Salary over $12,000. Available April. PW-6820, Engineering News-Record.

SANITARY ENGINEERING Designer, extensive experience treatment plant design including 7 years overseas. Available, now, prefer U. S. Location. PW-6916, Engineering News-Record.

CIVIL-STRUCTURAL Engineer, P.E.—licenses in various states, over 25 years of wide experience U. S. and abroad, on large industrial and architectural structures, and bridges of magnitude, desires position in charge of work or association with expanding company, here or abroad. PW-6767, Engineering News-Record.

POSITIONS WANTED

EXECUTIVE ENG'N-Supt. Formerly qualified journeyman. Five trades. Aggressive, ample know-how and expert improvising in field. Will assume responsibility for layout selecting equipment and production. Cost conscious. Review plans, prepare schedules industrial construction, schools, hospitals, housings, military installations. Maintain client and labor relations. Licensed Engineer New York. Now available. PW-6488, Engineering News-Record.

REGISTERED ENGINEER: Age 34. Experienced in all Phases of Architectural, Structural and Municipal Engineering. Desirous of relocating in South or S.W. with firm offering good opportunity or possible association. PW-6980, Engineering News-Record.

STRUCTURAL ENGINEER, age 50, thorough supervisory experience with large consulting and construction organizations on power plants, chemical plants, large industrials, airfields, waterfront structures, dams, bridges, etc. Excellent estimator, spec writer. Desires permanent responsible position. Salary range $8,000 to $10,000. PW-6971, Engineering News-Record.

SUPERINTENDENT OR Assistant to General Superintendent. 20 years heavy construction. Excavation, drainage and paving. Know men, methods, equipment and cost. Available April 1st. PW-6973, Engineering News-Record.

SUPERINTENDENT, 25 years construction experience, bridges, dams, treatment plants, pumping stations, concrete structures, sewer and water systems, heavy excavation, water front work, etc. Just off eleven million dollar warehouse job. Good organizer, know men and equipment. Familiar with labor and material costs and distribution. References upon request. Any location. Available immediately. PW-7022, Engineering News-Record.

PIPING SUPERINTENDENT, experienced in the installation and design of Natural Gas-Oil-Hydraulic-& Power Piping. Capable of complete responsibility-High degree of organizing, thorough knowledge of men; 9 years design background-38 yrs. of age-Available March 1st. PW-6996, Engineering News-Record.

PLANNING, ESTIMATING, administration and cost control. Executive engineer with B.S. and C.E. degrees, N.Y. license. 19 years excellent experience with two top firms in construction and design of industrial, chemical and heavy engineered construction. Familiar with both building and mechanical work on local and foreign, fixed price and cost—plus contracts. PW-7000, Estimating News-Record.

REGISTERED ENGINEER, 42, graduate C.E., 18 yrs. experience in architectural, structural and civil engineering. Desire responsible position with architect-engineer firm or engineer-estimator with contracting firm. Will supply resume and references upon request. PW-7009, Engineering News-Record.

SELLING OPPORTUNITY WANTED

LOCATION PERMANENTLY in Palm Beach, Fla. Now completing own building with showroom—warehouse and office—desire to represent manufacturers of staple lines used in the construction and building industry. Will cover state from Daytona to Miami. Graduate Engineer and well known construction executive—Age 40. Will warehouse if required. RA-6966, Engineering News-Record.

BUSINESS OPPORTUNITY

EXPERIENCED ENGINEERS, Designers or Contractors interested in associating actively and financially conducting business of well established Architects-Engineers Design Office located New York—Floating Equipment—Port Developments—Power Plants, etc. Reply with full details, experience, references, etc. BO-7041, Engineering News-Record.

WANTED

Want structural, mechanical, plant layout, tooling, civil or any combination of these. Approximately 300 man hours per week available. Registered in Indiana, Michigan and Ohio. WW-6773, Engineering News-Record.

• WANTED •
INDUSTRIAL PLANTS
Will arrange thru purchase of (1) Capital stock, (2) Assets, (3) Machinery and equipment, whole or in part—Personnel usually retained, strict confidence. **Box 1351,** Church St. Sta., New York 8, N. Y.

SHOVELS—CRANES—DRAGLINES
Northwest Mod 80-D Crane Dragline, Diesel.
P&H Model 955-ALC. 2½ yd. Diesel shovel. Excellent.
Lorain Model L-50 1 yd. Crane, Diesel.
Lima Model 1201 Diesel Shovel 3½ yds.
Buc. Erie 54-B Shovel-Dragline. Excellent.
Buc-Erie 120-B Electric Shovel. 5 yds.
Northwest 80-D Diesel Shovel, rebuilt, 2½ yd.
Lorain L820 Shovel-Crane-Drag. 2 yds.
Bay City 65, 1¼ yd. Diesel Shovel.
Lima 34 Paymaster ⅜ yd. Shovel-Drag.
Manitowac Mod 3500 Diesel Shovel.
P&H 855-B 1½ yd. Shovel-Crane-Drag. Diesel.
Lorain Mod. Mc-414 Moto-Crane 70 ft. Boom.

TRACTORS—PAYLOADERS
3 Cat. D-8 Tractors, 2U series, Rebuilt.
Cat. D6 and D7 Traxcavator. Rebuilt.
Hough Payloaders Models HLA, HFH, HM, HA.

CONCRETE PLANTS—BINS & SILOS
Erie 3 Comp. Agg., 400 bbl. Cement, 400 bbl. silo.
Large plant 212 yds., 6 compt., agg. and cement elevators, 56-S Mixer. Excellent.
Large plant 400 yds., 5 compt. with 2 yd. Koehring Mixers. Write for details.
Cement bin 400 bbls. with batcher. NEW.
Agg. bin, 100 tons 3 cpts., 2 yd. weighbatcher, NEW.

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Barber Greene Model 842 Utility Plant.
McCarter Iron Works Complete 3000# pug mill.
Cummer 1500 lbs. Semi-Port. Very good.
Std. 1500 lbs. Batch. Sta. Bit.
Simplicity Model S-100. Diesel powered.
Hetherington-Berner Asphalt Moto-Paver.

STIFF LEG AND GUY DERRICKS
Steel Stiff leg Derrick 100 Ton 100' Boom.
Steel Stiff leg Derrick 25 Ton 80' Boom.
American 20 ton stiff leg derrick 90' boom.
Guy-Erectors 110' Mast 100' BM. 35 Tons.
American 20 ton Guy derrick 100 ft. boom.

CONCRETE MIXERS AND PAVERS
2—Koehring Tilting Mixers, 4 yds. Complete.
Smith 56S Tilting Mixer, 2 yds.
Jaeger BP-5 Asphalt Paver & attachments.
2 Ransome 34-E Dual Drum Pavers Diesel.
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POWER PLANT 4-10 cy. Diesel engines, 1600 H.P.

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1—LORAIN Model 40.
Excellent Condition
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Will your jobs be flooded out this Spring when the snows melt? Don't be caught "short". RENT or BUY your PUMPS from ECA. We have a LARGE SUPPLY OF PUMPS, all sizes, from 1½" up to 12", electric or gas, centrifugal, vertical and horizontal, diaphragm, sludge and sump pumps. You name the type—we have it for RENT or SALE. See Partial List Below:

THIS MONTH'S SPECIAL
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1—Mdl. 190 Rex Single Pumpcrete #CP114, main power plant 4 cyl. Wauk. gas eng., with remixing hopper powered 4 cyl. LeRoi gas eng. Recommended pumping distance 1,000', w/7" pipe. Max. vert. lift 110', cap. 23-30 cu. yds. per hour.

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1—8" Gorman Rupp, Mdl. H18, Hercules Mdl. JXB gas eng., 126,000 GPH @ 25' hd.
2—6" C.M.C., Hercules gas eng., Mdl. QXC-5, cap. 90,000 GPH @ 25' hd.
1—4" Rex #50M, 4 cyl. Wauk. gas eng., 750 GPM @ 25' hd.
1—2" Marlow, 3½ HP "Mercury" eng., 115 GPM @ 10'.

PUMPS, CENTRIF., ELECTRIC
1—12" Dayton Dowd, vert., 50 HP 3/60/220/440 motor. Cap. 6,000 GPM at 19'; 4250 GPM @ 32'.
1—8" Ing. Rand size 8LFV, 50 HP 220/440/3/60 motor. Cap. 2,000 GPM @ 80' hd.
1—4" suc. 3" disch. Weinman, 7½ HP 3/60/220/440. Cap. 420 GPM @ 40'

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Horizontal Self-contained and Vertical Boilers, from 1 to 125 HP.

CRANES, CRAWLER
We have a large stock of *Crawler Cranes* from ½ to 2½ yd., Gas and Diesel powered, for RENT or SALE.

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1—30 ton Mdl. F OHIO, 50' boom, oil fired, Nat'l. Board 200# boiler.
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Several good *Guy* and *Stiffleg* Derricks, from 10-30 ton cap. Complete with hoisting equipment.

GENERATOR, 75 KW DIESEL AC
1—75 KW Diesel Generator, 220/440/60/3, power Cat. D-13000 Diesel eng., with gas starting eng. & control panels. Generator completely rewound. LATE MODEL. SAVE THOUSANDS of $$$$$$ FROM COST NEW PRICE. EXCEL. SHAPE.

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100 TON STIFFLEG DERRICK

175' boom. Mast 74'5". Legs 105'6". Sills 75'9". 30' bullwheel. With 200 HP 3 drum electric hoist 3/60/440. With 30 HP Independent elec. swinger.

Derrick will lift 12 tons at 178' radius.

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Rebuilt and In A1 Condition
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PORTABLE CRUSHING PLANTS: Pioneer 30 x 42 and one Cedar Rapids 15 x 24, both complete with power.
OVERHEAD ELECTRIC TRAVELING CRANE: Shepard Niles 7½ ton, 80 ft. span, 4 motor, bucket operating, 440 volt, A.C., cage control, in operation now, offered with or without 2¼ yd. clam shell bucket. New condition.
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Lorain Shovel ¾Yd. and Backhoe Cat Diesel new 1950.....$17,000.00
Unit ½ Yard Crane new 1951.....$7,000.00
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D-8 Cat. Bulldozer D.D.P.C.U. Serial #1H86375.P. $5,500
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Lorain 69 Cat. Diesel, Air Crowd, Vacuum swing and chain crawlers, 1¼ yd. Shovel front and 60 ft Crane Boom, excellent $15,000
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1942 D.G. Cletrac Bulldozer..... $2,000
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MARION shovel 5 yd., rental purchase
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EUCLID REAR DUMP TRUCKS 15 & 22 ton

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FOR LEASE WITH OPTION TO PURCHASE

15 Bottom Dump Euclid Trucks

Model 38-FDT, 15 c.y., used 2,500 hours. Will lease for 6 months, rental to apply on Purchase Price of $16,000.00 each. Rubber is 80% of new condition—Trucks located at Garrison Dam, Riverdale, North Dakota—Telephone Riverdale 8191—Mr. Dale Watson, or Los Angeles, NEvada 62-661

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8—Euclid Model 43FDT Tractors with 58W Bottom Dumps, New Late 1948, GM Diesel Powered, Tires 70% Condition, These Units in Good Condition, **$9,500.00** Each
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Above Equipment Located Near Augusta, Georgia. Will Consider Rental Purchase Deal.

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1 Northwest Model 95 Crane/Dragline with 95' boom, 15' jib, Murphy-Diesel Engine
Excellent condition
1 Byers Model 83, ¾ yd. Crane/Backhoe combination
Recently overhauled
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All available immediately and all priced reasonably

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$1,250.00 Each F.O.B.

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SWITCH MATERIAL
ALL TRACK ACCESSORIES

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Equipment priced to sell in excellent condition

3—Caterpillar DW-20 Tractors & W20 Bottom Dump Wagons
1—Euclid 38FDT Tractor & 89W Bottom Dump Wagon
3—International TD24 Tractors W/F Bucyrus Erie Bullgraders & PAPCU's
2—International TD24 W/F Bucyrus Erie Push Blocks & (1) W/F PAPCU's
3—International TD-18A Tractors W/F Heil Angle Dozers & PAPCU's
1—Worthington 500 Diesel Compressor on Rubber
1—Bucyrus Erie TD0112 Tamping Roller
1—Bucyrus Erie CR-4 Ripper
1—Rogers Low Deck 60 Ton 16 Wheel Trailer & KR12 Internation Tractor
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M. REINFORCING STEEL EQUIP.
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5—Frostguard Heaters
5—Mortemp Heaters
5—Silent Glow Heaters
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BB. CONSTRUCTION TIMBERS
Used Heavy Timbers 14" x 28"

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43' x 111' Steel Pontoon Barge
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16½' Net Tender Boat. Inbd.

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2—500 CFM Gardner-Denver Port
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H. LIGHT PLANTS
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48" Blade Saw Mill
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Jackhammers—Paving Breakers Chipping Guns—Wood Borers—Impact Wrenches—Grinders—Air Tugger—Air Saw

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33" x 220# WF Beams
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2—Model AHW Sanstorm Units
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1—Hydro-Silica Pump, 1500# WP

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U. BLUE PRINT EQUIP.
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X. SMALL CONSTRUCTION TOOLS
Mdl. 22 Ramsets - Twist Drills - Reamers - Bolt Stock & Dies - Misc. Wrenches - Bars - Hammers - Electric Drills

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4" Rainmaker Pipe
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DRAGLINE EQUIPMENT FOR P & H MODEL 655 CRANES

50 ft. Dragline Boom..... $800.
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OR the entire lot ..... 1750.

All prices f.o.b. our plant, Englewood, N. J. All equipment is in excellent condition. Shipment can be made at once.

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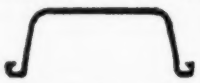

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Dravo Corp. has been appointed as sales and engineering representative for Oxy-Catalyst, Inc., manufacturers of Oxycat, an air-pollution control and heat recovery device that first gained recognition last May by running a plant in Allentown, Pa., on its own process gases.

Oxy-Catalyst itself has handled engineering and construction of all its installations heretofore but, according to E. J. Houdry, company president, interest in Oxycats for both heat-recovery and pollution-control have become so great that it has not been able to keep up with inquiries.

Dravo will handle the new catalyst through its Machinery Division out of its offices in Pittsburgh, Philadelphia, New York, Cleveland and Washington, D. C. The Machinery Division will be responsible for the sales, application engineering, installation and servicing of Oxycats in industrial plants and incinerators for noxious fume removal.

The Allentown company that installed a bed of Oxycats last summer to run its own plant odors is Enamelstrip Corp., a metal-finishing concern. Put in by the company to burn off noxious solvent fumes, the Oxycats are reported to have generated enough heat energy to cut the plant fuel bills by 90%. In a second application, this time in the Marcus Hook, Pa., refinery of Sun Oil Co., a bed of Oxycats installed last October converted waste cat-cracker gases into power to run a gas turbine and provide plant process steam.

Since then 45 major industries have inquired about the process and most of these cases have been turned over to Dravo for study and eventual installation. As the picture shows, each Oxycat unit measures 5½ in. long by 3⅜ in. high by 3 in. wide. It's made up of two thick porcelain end plates and, between them, a porcelain spacer bar and 73 coated porcelain rods. These catalyst units are stacked in layers in the exhaust stacks of furnaces, ovens or power plants. Waste gases flow across the rods. Combustion of gases occurs at the surface of the rods, coated with .003-in. film of catalytic agent—catalytic alumina and platinum alloy. Heat released by the burning of the gases in most cases can be channeled for useful plant purposes. OXY-CATALYST, INC., WAYNE, PA.—DRAVO CORP., PITTSBURGH, PA.

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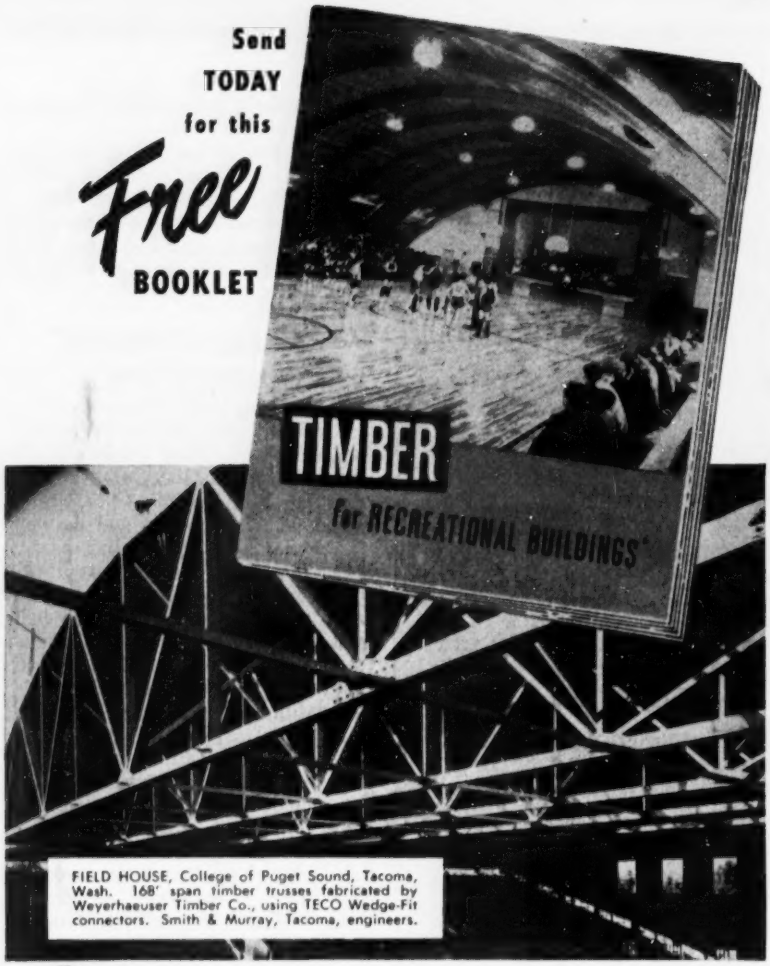

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Of the four helmets, No. 702-3-C has an insulated steel glass holder and No. 700-3-C has a plastic glass holder, both with Filterweld plate and clear cover plate. Available on special order only are No. 704-3-C with plastic lift-front glass holder and No. 705-3-C with insulated Dowmetal lift-front glass holder. AMERICAN OPTICAL CO., SOUTHBRIDGE, MASS.

Wrap-around insulation for hot and cold piping

Latest addition to the list of Fiberglas products is Aerowrap, a fine-fibered insulating blanket that's flexible and easy to apply on flanges, fittings, valves and straight sections of hot and cold piping of all sizes.

Available in rolls 100 ft long, 36 in. wide and ½ in. thick, it may be cut with shears, knife or paper cutter and thus applied to any size or shape desired. Repeated wrapping is permissible and the company claims that installations are OK on pipes with temperatures ranging from sub zero to 600 degrees F.

After it's wrapped around pipes, it can be held by three different methods; with staples, adhesive or Fiberglas cord tied on 6-in. centers. Four kinds of jackets may be installed over the Aerowrap. In the accompanying photo a workman is covering it with corrugated aluminum sheet. He can also use black roofing felt, while asbestos paper-faced felt or rolled galvanized sheet metal.

(*Continued on page* 118)

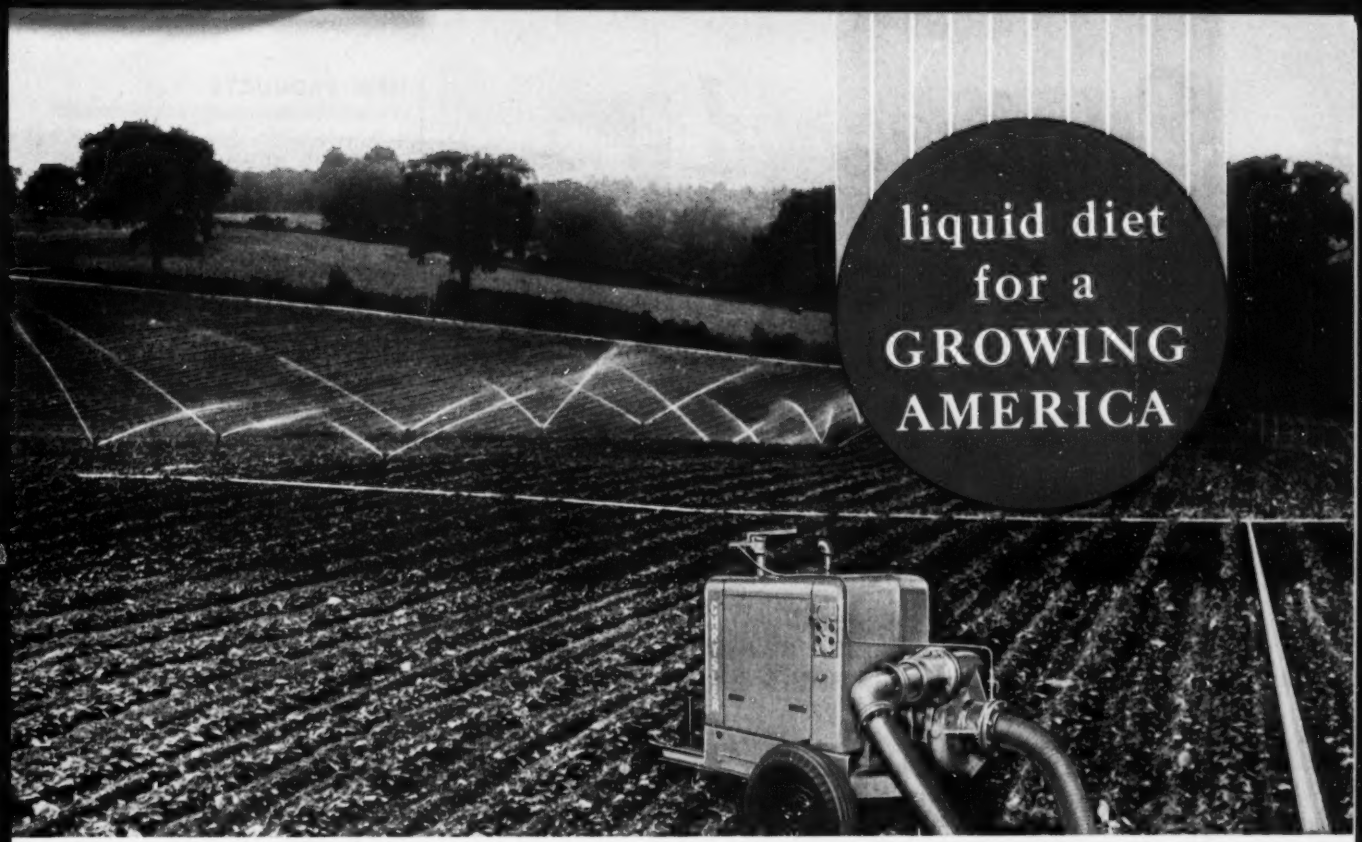


Photo courtesy Marlow Pumps, Ridgewood, New Jersey

nearly 25% more water with Chrysler Industrial Power

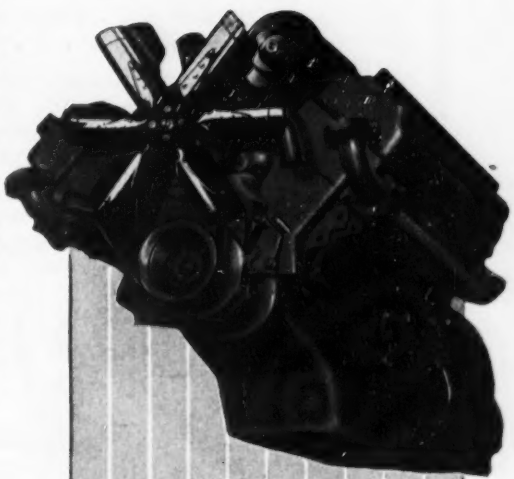
Too seldom does Mother Nature supply moisture in the right proportion for maximum realization of the good things of the soil. This problem is not confined to the so-called "dry" or "arid" regions of the country. For instance, here's a field of beans in upper New York State. This farmer, like many other farmers and growers, has found that a sprinkler system fed by a Chrysler-powered pump provides the supplemental irrigation necessary for best growth.

The Marlow Pump in use here is designed for high capacity pumping. For that reason, the powerful new 180 horsepower, 331 cubic inch displacement Model 20 Chrysler V-8 Industrial Engine was selected to power it. Result: nearly twenty-five percent more water than delivered by pumps powered by engines of similar weight and displacement, *without* sacrificing fuel economy.

This is another fine example of how Chrysler meets the many and varied requirements for industrial power. For instance, Chrysler can equip any of its engines with a corrosion-resistant or fungus-treated electrical system; propane or natural gas burning carburetor; 3, 4 or 5 speed transmission; standard or gýrol Fluid Drive.

Chrysler Industrial Power is not expensive. Production-line methods adapted to specialized industrial engine building provide a custom-built engine at mass-production prices.

For your power needs, see a Chrysler Industrial Engine dealer or write us direct: ***Department 73, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***



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Industrial Engines

HORSEPOWER WITH A PEDIGREE

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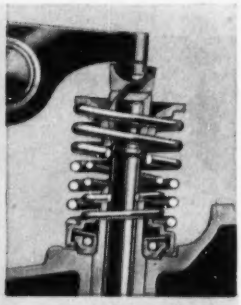

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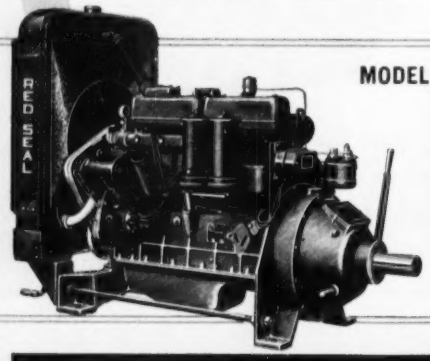
UNDERLYING THE USE OF CONTINENTAL RED SEAL ENGINES AS POWER FOR SO MANY LEADING MAKES OF INDUSTRIAL EQUIPMENT IS HALF A CENTURY OF UNCOMPROMISING STRESS ON ENGINEERING, AN EMPHASIS WHICH CARRIES THROUGH TO EVEN THE MINUTEST DETAILS.

Take the valve assembly in the cutaway view above. The inner and outer springs, you note, are wound in opposite directions, doing away with all possibility of pinching or interference when compressed. This detail, tiny in itself, typifies the countless "tremendous trifles" which combine with major engineering features to make Red Seal engines the dependable product they are.

As for these major features, the list is long and impressive. It includes the exclusive Continental system of individual porting . . . full-length water jackets . . . patented oil and dust seals . . . leakproof water pump . . . multiple cylinder-head studding . . . rifle-drilled oil galleries . . . balanced crankshaft with Tocco-hardened journals . . . and many, many more.

For performance, economy and stamina born of engineering leadership, and backed by parts and service facilities throughout the world, standardize on equipment with Continental Red Seal power.



MODEL R-600 OPEN POWER UNIT

Six-cylinder, overhead valve design. Bare engine horsepower 192 @ 2400 r.p.m. Also available as closed power unit with sturdy sheet metal house with detachable sides. Other Continental Red Seal models from 14 to 277 horsepower for every type of job.

Continental Motors Corporation
MUSKEGON MICHIGAN

NEW PRODUCTS

The only special precaution necessary is the use of a vapor barrier on cold lines to prevent mositure from penetrating the insulation and condensing on the pipe. The vapor barrier is applied over the Aerowrap, which, according to company, provides heat savings efficiency up to 25 per cent over rigid insulation of equal thicknesses. Initial cost is said to be one third less and, as is the case with many Fiberglas products, compressibility allows for maximum amounts to be stored in a small space. OWENS-CORNING FIBERGLAS CORP., TOLEDO 1, OHIO.

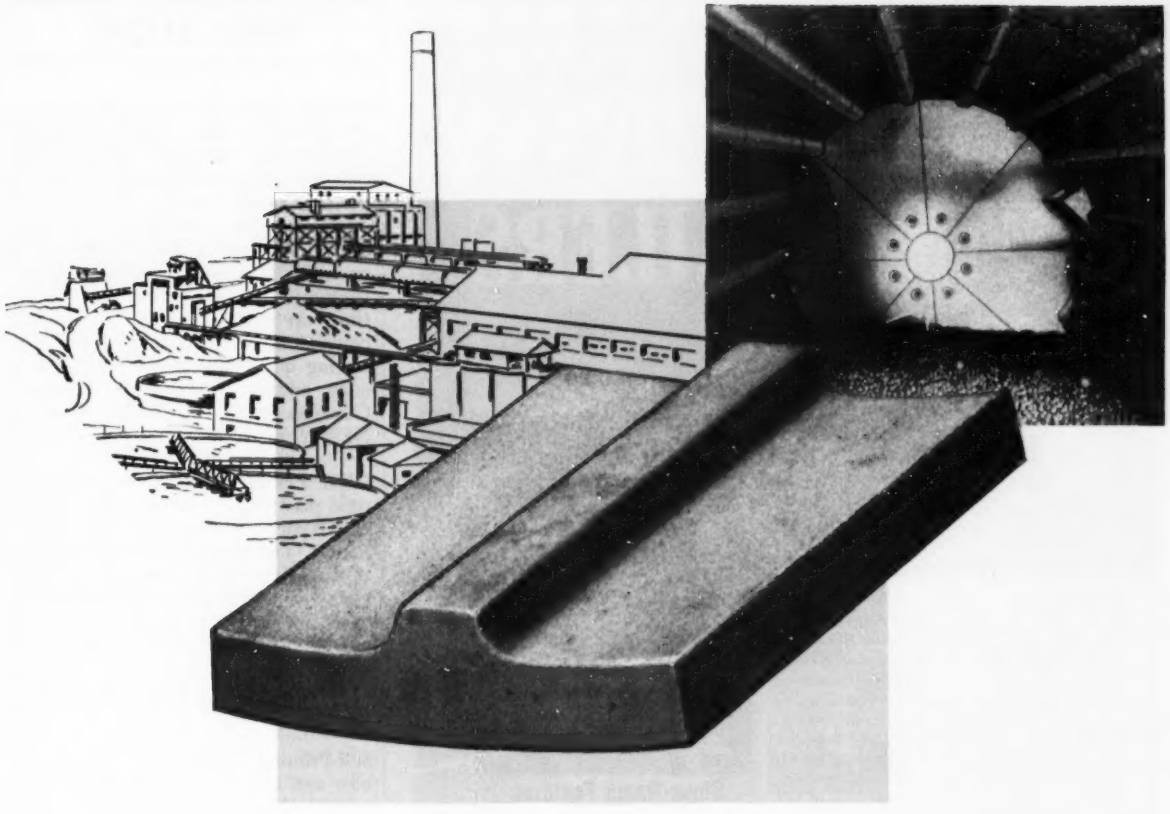
New Product Briefs . . .

Magnus Waterless Hand Cleaner, although manufactured for use where water is not conveniently available, is water-soluble. It's said to rinse thoroughly, leaving no oily residue. It **removes grease, tar, inks** and the like; is a white, stiff jell with generous amount of Lanolin; contains no alkalis, hence is not irritating to the skin. It's manufactured by **Magnus Chemical Co., Inc., Dept ENR, Garwood, New Jersey.**

Furane **resin surface coating** Type X-5 is the most recent of a long line. It shows remarkable properties of **adhesion to various metal surfaces,** including alloys of copper, steel, aluminum or magnesium. It makes these surfaces more receptive to adhesive bonding. Not only does the film possess acid and alkali resistance, but resistance to solvents and boiling aqueous solutions.

A new **20-ft long, 20-cu-yd package trailer dump** has been put on the market by **The Galion Allsteel Body Co., Galion, Ohio.** Dumping is done by a Galion 77380 hoist, consisting of two 3-section telescopic units, rated at 22 tons. The unit is Heavy-Duty Model 12 and is available with power fifth wheel or hose operation. Several optional tire sizes and brakes can be had.

Dimetric graph sheets join the Instrumaster line of isometric and dimetric ellipse stencils **to promote axonometric drawings.** They come in pads of 50 sheets each and the lines, although light enough not to reproduce on blueprints or black-and-whites, can be readily traced. Sample sheets will be sent upon request on company stationery by **John R. Cassell Co. Inc., 110 W. 42nd St., New York 36, New York.**



this LINER boosted production 35%

AMSCO Ball Mill Liners

Reduced Down-Time, Increased Production...

A large West Coast cement producer found that Ball Mill Liners were causing expensive trouble. Liners were thick—*over 3 inches*. This meant reduction in mill capacity. Thick liners also meant tremendous weight. Both thickness and weight reduced production and efficiency. *Liners wore rapidly*, too, causing frequent, expensive replacement jobs, with costly labor and material. And added to the bill was lost production due to mill down-time.

Well-known for their skill in handling impact and abrasion-resistant alloys, AMSCO engineers and foundrymen were consulted.

AMSCO solved the Ball Mill Liner problem.

AMSCO designed a new, light, thin—*1 inch thick*—liner, which because of lightness and thinness increased mill capacity, heightened efficiency. The new liners lasted beyond all expectations and in addition the segments were easier to install. These factors, plus reduced replacement down-time, have been responsible for a *35% increase in production.*

AMSCO is the largest producer of Manganese Steel, "the toughest steel known," which has proven itself under countless abrasion and impact situations. And where the service conditions require it, AMSCO also produces Chromium-Molybdenum and Chrome-Manganese alloys.

If you have a tough wear problem and suspect that there may be a better alloy for your purpose, you are invited to write to AMSCO for further information.

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AMERICAN MANGANESE STEEL DIVISION

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Pressed Steel Car Company takes a great deal of pride in presenting the newly developed and designed THD-425 Heavy Duty Trailer. It features eye-appeal and pride of ownership, so important to particular businessmen. The new PSC Slope-Ramp replaces the cumbersome and troublesome splash guards of more outdated trailers. The THD-425 is only one of the improved models in Pressed Steel Car's line of new heavy duty trailers for use in hauling from 5 to 100 tons. Investigate the possibilities of Jahn Trailer economizing for you. Mail the attached coupon for additional details and technical information.

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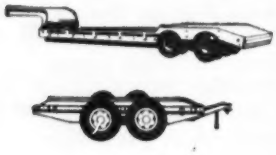

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PUBLICATIONS

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Clear Plastic Sheets—Optically clear, rigid plastic sheets are featured in this new 8-page illustrated bulletin of cast optics. The catalog contains descriptions and tables of properties of four types of cast plastics, lists of features, brief fabrication instructions, and various accepted uses. Write for Cast Optics Catalog, CAST OPTICS CORPORATION, 1 POST ROAD, RIVERSIDE, CONN.

Self-Priming Pumps—Performance tables and engineering information are contained in descriptive folders illustrating self-priming centrifugal pumps for contraction available by writing the GORMAN RUPP COMPANY, MANSFIELD, OHIO.

Caterpillar Tractor—Eleven on-the-job photos in this 8-pager show the use of Caterpillar tractive equipment for construction, railroads and municipalities. The folder includes short descriptions of important constructive features. Copies of "Tracks to Profit" may be obtained from CATERPILLAR TRACTOR COMPANY, PEORIA, ILLINOIS.

Industrial Pumps—Specifications and illustrations abound in this complete 96-page catalog of industrial pumps for almost any purpose. Sectional diagrams and selection tables are featured on a diversity of pumps including many kinds of centrifugal pumps, vertical turbine pumps, oscillating pumps, piston pumps, recriprocating pumps and rotary pumps. Industrial Catalog No. I-52 is available from any DEMING distributor, or by writing to the DEMING COMPANY, SALEM, OHIO.

Power Hammers—Applications of gasoline-powered hammers in utility, telephone, municipal, mining, military, factory maintenance and general construction fields are described in this new 8-page bulletin. New models are featured with tool bits and accessories

for the special out-of-the-ordinary job. Copies of Bulletin 613 may be obtained from BARCO MANUFACTURING COMPANY, DEPARTMENT H-29, 1801 WINNEMAC AVE., CHICAGO 40, ILL.

Heavy-Duty Tires—This folder describes the important features and applications of heavy-duty construction tires. Folder may be obtained from dealers handling American-Rawls tires. Ask for Vacu-Lug Process.

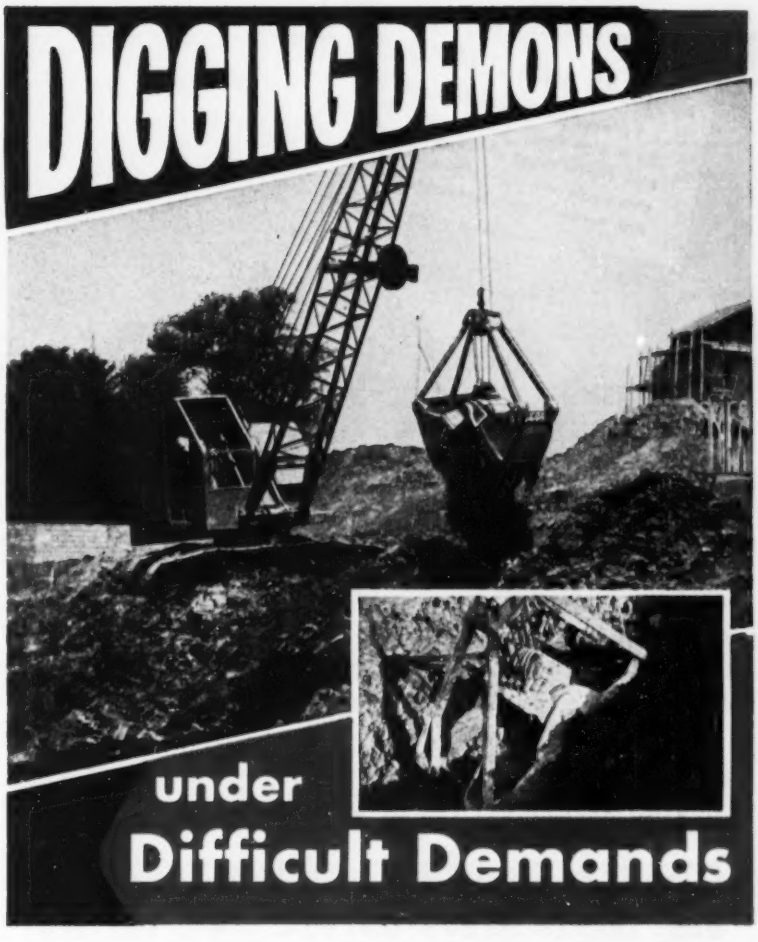
Concrete Forming Tables—A new 4-page folder of tables has the following information: Splicing of girts, joists, or stringers when using Symons manufactured panel forms or ¾ in. plywood, and the spacing of shores and column clamps in concrete form work. Estimators should find the tables exceedingly valuable. Write the SYMONS CLAMP & MANUFACTURING COMPANY, 4249 DIVERSEY AVENUE, CHICAGO 39, ILLINOIS.

Frameless Metal Buildings—Industrial, military, and farm frameless metal buildings are described and illustrated throughout this 22-page bulletin. Advantages of frameless building, details and construction sketches are included. The booklet may be obtained from METAL BUILDINGS DIVISION, BEHLEN MANUFACTURING COMPANY, COLUMBUS, NEBRASKA.

Air Cylinders—Diagrams and charts explain the capacity and types of mounting of a varied line of air cylinders in this 16-page bulletin. Users of mechanical industrial equipment involving cams, gears and drives should find this information useful. Write for the bulletin to AIR & HYDRAULIC DIVISION, LINDBERG ENGINEERING COMPANY, 2443 WEST HUBBARD STREET, CHICAGO, ILLINOIS.

Welding Electrodes—Electrodes for machinable welds on cast iron are the subject of this new folder. Illustration of its use, and recommendations of amperage range are included. Write for "Nickel-Arc 60", ALLOY RODS COMPANY, YORK, PENNSYLVANIA.

Close Coupled Pumps—Construction features of the supporting-adapter type, general purpose pump are described and shown in this six-page bulletin. It describes the choices of packing or mechanical seal and gives tables of dimensions for the various types made. Bulletin 52B6083A, ALLIS-CHALMERS MANUFACTURING CO., 840 S. 70TH STREET, MILWAUKEE, WISC.



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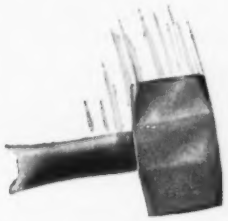

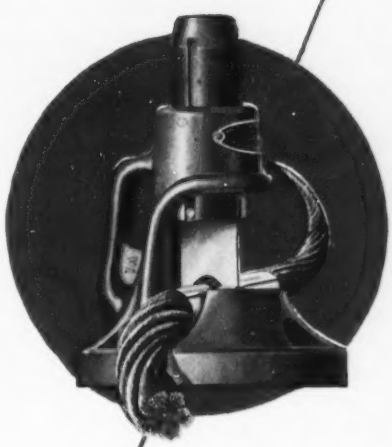

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EDITORIALS

Heliport planning needed

CITY PUBLIC WORKS OFFICIALS who have not given thought to the planning and placement of a heliport —and they are legion—have not been reading the papers. The tremendous strides made in the development of helicopter transportation—although somewhat hidden in military secrecy—can be discerned in periodic dispatches from Korea. And equally revealing is the increasing frequency with which announcements are made of the establishment of commercial helicopter operations to move freight and mail around some of the larger cities—as for example, New York, Chicago and Los Angeles. Unless the rapidity of this development is better appreciated, city planners and city engineers may face an emergency situation one of these days that can be met only with illy conceived and inefficient solutions.

To say "one of these days" does not necessarily mean next week, next month or even next year. But, in terms of normal and necessary planning time, the characterization is not farfetched. Moreover, there is every reason to believe that when the helicopter does arrive it will be with unprecedented suddenness. The canal boat, the railroad train, the automobile and even the airplane appeared on the transportation scene in relatively slow stages. There was ample time—even though more often than not advantage was not taken of it—to plan terminals and ancillary service facilities. But when present military priorities are dropped, the helicopter immediately will emerge in force as a transportation vehicle to be reckoned with at that time.

Most of the helicopters seen in the domestic skies today will carry a maximum of four passengers or an equivalent weight of cargo. In contrast, the military is using many of 7-passenger capacity and some of 10. Test models of twice these sizes have been flown, and designs for a 41-passenger 'copter are reported.

There are aerodynamic, metallurgical and power plant limitations to the design and manufacture of truly large transport helicopters, but there is no reason to believe that expanding knowledge and experience can't overcome them. In the meantime, the machines that can now be manufactured can operate with commercial success (and are doing so) in the type of service for which the helicopter seems best suited—trips between cities and outlying suburbs and airports.

So far, most of the thinking with respect to heliports has been directed to landing areas on roofs and to roped-off spaces on the aprons at airports. Few of these areas are larger than 300 x 500 ft, hardly big enough to accommodate many simultaneous landings and takeoffs of even present size helicopters. And it is rumored that the larger ships of the future may require runways to aid in their takeoffs. To the need for selecting heliport sites and reserving them on the city plan is added, therefore, the necessity for thinking in terms of much larger areas than has yet been the case.

Only the Port of New York Authority, among agencies which might be expected to do some planning, has so far seriously studied the possibilities and consequences of helicopter transport. It concluded that operation would be feasible within a 175-mile radius of New York. And its studies led to a prophecy that by 1975 helicopters in that area would be carrying annually 6,000,000 commuters to and from airports and suburbs, 45,000,000 pounds of airmail and 6,500,000 pounds of package cargo. There are those who believe that these figures may prove to be conservative. The helicopter age may arrive before 1975.

The important point is that, from the standpoint of the city planner, time is growing short. Site selection and layout and size studies of heliports have an immediacy that requires an end to procrastination.

Do we need an AASE?

A PROPOSED new professional organization to be known as the American Academy of Sanitary Engineers (ENR Feb. 12, 1953, p. 28) would have as its objective "the advancement of sanitary engineering by the promotion of the professional, political, economic and social stature . . . of professional sanitary engineers." But could not all of these things be accomplished within existing organizations?

Proponents claim that their AASE would not compete with other societies. Yet it would meet in conjunction with other national society annual meetings; it contemplates regional and state chapters; it proposes a quarterly publication. Is this not spreading still farther the already multiple interests, activities and allegiances of sanitary engineers?

An aim of some proponents of the new organization is to establish sanitary engineering as a separate profession. But 80% of those doing advance study in sanitary engineering are graduates of civil engineering schools; also 80% of an estimated 5,000 in sanitary engineering are engaged mostly in water and sewage work; and there are over 3,700 members in the sanitary engineering division of the American Society of Civil Engineers. Can sanitary engineering really claim to be separate?

It is also pertinent to recall that for 20 years the ASCE sanitary engineering division has had a committee on advancement of sanitary engineering. And recently a joint group has been formed, bringing this committee together with sanitary engineer members of four other national societies. We wonder if those who would now form an independent society should not instead put their energies into correcting whatever shortcomings they see in the existing joint group.

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